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**EFFECTIVENESS OF EFFORTS TO ADDRESS  
DEFICIENCIES IN THE B-1B BOMBER PROGRAM**

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4. G 74/7: B 63/5

Effectiveness of Efforts to Address...

**HEARING**  
BEFORE THE  
LEGISLATION AND NATIONAL  
SECURITY SUBCOMMITTEE  
OF THE  
COMMITTEE ON  
GOVERNMENT OPERATIONS  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED THIRD CONGRESS  
SECOND SESSION

**MAY 4, 1994**

Printed for the use of the Committee on Government Operations



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# EFFECTIVENESS OF EFFORTS TO ADDRESS DEFICIENCIES IN THE B-1B BOMBER PROGRAM

WEDNESDAY, MAY 4, 1994

HOUSE OF REPRESENTATIVES,  
LEGISLATION AND NATIONAL SECURITY SUBCOMMITTEE  
OF THE COMMITTEE ON GOVERNMENT OPERATIONS,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 10 a.m., in room 2154, Rayburn House Office Building, Hon. John Conyers, Jr. (chairman of the subcommittee) presiding.

Present: Representatives John Conyers, Jr. and Al McCandless.

Subcommittee staff present: James C. Turner, staff director; Eric M. Thorson, professional staff member; Cheryl G. Matcho, clerk; and L. Stephan Vincze, minority professional staff.

## OPENING STATEMENT OF CHAIRMAN CONYERS

Mr. CONYERS. Good morning. Will everyone take their seats, please? The subcommittee will come to order.

Today, we continue the oversight of the B-1B, one of the most controversial and costly programs in the history of the Air Force. In 1991, the committee issued a report which pointed out that although the B-1B was originally intended to serve as both a nuclear penetrator and a conventional bomber, its capability to perform either role is highly questionable. This still appears to be the case.

With its history of dismal readiness rates, inadequate radar jamming systems, engine problems and manufacturing defects, the critical question that all of us must consider is whether the troubled B-1B program warrants the additional \$2.9 billion investment which the Air Force is now seeking.

Chief among its problems is readiness. Today, at any given time fewer than half of the 95 B-1Bs in service are capable of performing any mission. Indeed, the fleet has always had a fully mission capable rate of zero. In addition, current plans call for removing 26 B-1Bs from the fleet and designating them as "attrition reserve". Whether this new designation will actually improve the B-1B's reliability is a serious concern given its history of low readiness rates.

The second major problem is the B-1B's lack of a fully effective defensive avionics system. Because of its limited radar jamming systems, the B-1B cannot perform its primary mission as a nuclear bomber and its conventional capability is greatly limited. Although we have already spent over \$3 billion for the plane's extremely lim-



ited jamming capability, Air Force plans now call for another \$1.1 billion, which will give the B-1B full operational capability as a conventional bomber in the year 2007, exactly 22 years after the first aircraft was delivered.

Third, the B-1B does not have an anti-icing system for its engines, which means that the aircraft is prohibited from starting its engines over standing water or melting snow while the temperature is between 20 and 47 degrees Fahrenheit. This is hardly an asset for a "all weather bomber."

Fourth, the B-1B has been plagued by a lack of reliable aircraft engines and spares. According to GAO, until recently, the Air Force could not even provide all four engines for each B-1B aircraft.

Fifth, there is some question about the B-1B's ability to effectively drop 500 pound bombs, the only conventional munition it can currently deliver. In low level bombing tests during July 1990, nearly half of the 631 bombs collided with each other on the way down. Of these, 117 were hard collisions causing physical damage to the bomb, or worse, early detonation. In the first B-1B test with live bombs, during May 1991, all bombs from the aft bay fell to the ground unarmed. Equally troubling, during the first B-1B high altitude bombing tests in April 1991, several of the 500 pound bombs could not be found and one was found about 1.7 miles away from the others. Obviously, we must hear how the B-1B has done in more recent tests.

Lastly, there is a new problem—structural cracks appearing in the tail surface known as the horizontal stabilizer. Although not a single B-1B has accumulated a high number of flight hours, these cracks have been found in every aircraft checked. There are serious questions about the extent of this damage, and who should pay for the repairs for this manufacturing defect.

American people have spent approximately \$30 billion on the B-1B program. In 1987, the Commander of the Strategic Air Command called the B-1B the "best bomber in the world today." In 1994, this aircraft is called the "backbone" of the bomber fleet. Yet the fact remains that the plane still cannot fully perform the job it was designed to do.

So I welcome our witnesses here today and look forward to their testimony. We need an open discussion, a true understanding of what additional capability this nearly \$3 billion will provide, and what the Air Force really intends to do with this bomber. We want to know what the taxpayer got for \$30 billion spent on the B-1B and will additional investments really correct its long-standing deficiencies?

I would like to turn to the gentleman from California, Mr. McCandless, for his opening statement.

Mr. MCCANDLESS. Today our subcommittee revisits the B-1B bomber and asks whether proposed improvements, estimated to cost between \$2.5 and \$3 billion, are a wise investment. Without question, the B-1B has suffered from highly publicized problems in the past. Yet, as most news these days, it is generally bad news that gets the most attention. I encourage all of our members to approach today's hearing with an open mind, to listen to both the good and bad news regarding the B-1B. My hunch is that after hearing nothing but negative reports about the B-1B, many will be



astonished with the B-1B's current capabilities and dramatic improvements since our last hearing in March 1991.

To illustrate my point, the B-1B has received the best operational readiness inspection scores of any strategic system ever fielded. It has the best safety record in the first 6 years of any comparable bomber or fighter. It holds 47 world range, altitude, payload, and time to climb records. It has won every SAC bombing competition it has entered. The 125,000 pounds of payload is more than double the payload of either the B-52 or the B-2 and can fly at MACH .85 at 200 feet above the ground and 1.2 MACH at 35,000 feet.

Of course, skeptics may say, well, all those statistics may sound nice, but what about the serious engine problems such as the cracking engine blades? In 1991, the General Accounting Office estimated the cost for repairing the problem of the cracking blades would be from \$10 to \$500 million and that a redesigned blade would not be ready until July 1994. Today, in May 1994, with the problem permanently repaired, the cost of repairing the blades was \$9 million.

Perhaps most convincing is to hear the views of the men and women in the U.S. Air Force who fly and work with the B-1B. A member of our minority staff went to Ellsworth Air Force Base in mid-April of this year to hear directly from these people who see what works and what does not work with the B-1B. The comments were direct, honest, and revealing. Let me share a few of them with you today.

A senior sergeant who was responsible for a maintenance team on the plane frankly stated to our staff representative, "I have been here since the B-1 first arrived in the late eighties; and frankly, all the horror stories you have heard earlier about the maintenance problems were true. But today, I feel like the Maytag repairman. The B-1 has become an extremely reliable plane."

Another chief master sergeant in charge of the B-1B maintenance observed that as a father of a B-1B pilot, he would have every reason to highlight the B-1B's problems if he thought his son's life was in danger by a seriously flawed aircraft. But as someone who knew firsthand about the B-1B's abilities, he felt confident and proud that his son flew a very safe and reliable airplane.

Let me conclude by stating while the B-1B has encountered serious troubles that certainly warrant our continued oversight and scrutiny, we must not let these past problems distort our views of the present, nor obfuscate our plans for the future. If implementing the proposed conventional munitions upgrades which have been proposed for all bombers, not just the B-1B, is not the best alternative, then what is?

Should we instead rely on the B-52, a nearly 40-year-old plane that is slower, carries much less payload, and is more vulnerable to enemy radar? Or do we buy more B-2s at a cost between \$600 million and \$2 billion per plane?

These are tough choices. Accordingly, I look forward, Mr. Chairman, to the hearing and our witnesses today to see if they can provide us with their expert insight in helping us arrive at the best decision for our Nation's national security.

Thank you, Mr. Chairman. I would ask unanimous consent, Mr. Chairman, that Mr. Clinger's statement be entered in the record as he is detained and unable to attend our hearing.

[The prepared statement of Mr. Clinger follows:]

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ONE HUNDRED THIRD CONGRESS

## Congress of the United States House of Representatives

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### Statement of the Honorable William F. Clinger, Jr. Subcommittee on Legislation and National Security May 4, 1994

Thank you, Mr. Chairman. When it comes to the B-1B bomber, I surprisingly find myself inclined to agree with the Chairman of the House Armed Service Committee, Mr. Ron Dellums -- I don't believe we need any more B-1B's, but now that we have 96, we should make sure they work. Let me add, however, that I disagree with Chairman Dellums about the need for more B-2's -- 20 B-2's clearly seem inadequate to meet two simultaneous major regional conflicts as called for in the Bottom Up Review.

The B-1B program, nevertheless, has clearly been plagued by serious problems in the past. But as my distinguished colleague from California Al McCandless has aptly pointed out, we need to carefully examine the present, plan for the future, and not dwell on the past. We have a duty to our constituents and to all federal taxpayers to do what we can NOW to get the most bang for the buck.

To do that and to maximize our current investments in the B-1B, we need to ask and answer the question of what alternatives are available to the proposed improvements to the B-1B. Do we scrap the B-1B, wasting all the years of effort and billions of dollars already invested, and buy B-2's at anywhere from \$600 million to \$2 billion a plane? Do we scrap the B-1B and rely on only 20 B-2's and the forty-year old B-52 fleet?

We should guard against being too enamored with a proven but old weapon system, the B-52. Nearly forty years old, the B-52 was originally designed to carry only four very large nuclear bombs for a purely strategic nuclear mission. Today, after numerous modifications, the B-52 has been transformed into a highly capable conventional munitions platform. It has taken decades to get to this point, however, and the plane is old and creaky. Continued long-term reliance on the B-52 strikes me as similar to driving a souped-up and modified Ford Model T. Sooner or later you need to recognize that you've gotten the most mileage possible out of a particular design and the time to change and to modernize has arrived. Improving the B-1B with the proposed upgrades and taking advantage of its superior speed, smaller radar cross-section, and vastly superior payload capability to make it the backbone of the Air Force bomber fleet seems to make sense today.

(OVER)

Before we make that decision, however, I would urge all of our members to insist on knowing the whole B-1B story, what it can and can not do and why. For example, recent comments from the men and women in the trenches who work day in and day out with the B-1B suggest that the single greatest problem with the B-1B's readiness is the unavailability of routine spare parts. If accurate, this is a problem of funding, not of design. Nevertheless, the Air Force has scheduled a rigorous six-month Operational Readiness Test, scheduled to commence this June. The results of that test should be quite helpful. I would suggest that it would be prudent to withhold definitive judgements regarding the proposed improvements to the B-1B prior to the completion of this test.

I look forward to hearing the views of our witnesses today on whether improving the B-1B makes sense for ensuring that we retain the most effective bomber force now and in the foreseeable future.

###

Mr. CONYERS. Without objection, so ordered. We will also include the statement of the gentlelady from New York, Representative Carolyn Maloney.

[The prepared statement of Mrs. Maloney follows:]

CAROLYN B. MALONEY  
14TH DISTRICT, NEW YORK  
COMMITTEE ON BANKING, FINANCE  
AND URBAN AFFAIRS

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GOVERNMENT OPERATIONS

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REP. CAROLYN MALONEY -- OPENING STATEMENT

OVERSIGHT HEARING ON THE B-1B BOMBER

MAY 4, 1994

Thank you Mr. Chairman and welcome to our witnesses. I look forward to hearing from you today. This hearing continues our Subcommittee's oversight of the B-1B bomber, begun in 1991, which revealed serious problems with the program. Hopefully, some of those shortcomings have been addressed.

One of my major concerns is with the defensive avionics system for the B-1B. When the plane was originally designed, the Soviet Union was our primary adversary. The avionics were consequently intended to recognize only a relatively limited number of "threats," or invasive enemy radar signals. \$3.2 billion has been spent on this system, yet it is still not complete.

Today this country faces a much different international situation. The monolithic enemy the Soviet Union represented has been replaced with a multiplicity of regional instability. For that reason, the Air Force now wants to target 178 "threats" and needs a reported \$1.4 billion more to do it. Given the troubled history of these systems, I for one remain skeptical about the feasibility of this plan.

This program has faced other problems, such as a defective anti-icing system and a poor state of readiness -- with only about half of the fleet flying at any one time. I look forward to hearing from our witnesses on these and other issues affecting the B-1B program.

Thank you Mr. Chairman.



Mr. CONYERS. Thank you for your opening statement.

We have our witnesses present. Ms. Sterste-Perkins, Lou Rodrigues, Major General Henry, Brigadier General Richards, and Mr. Schroeder and Mr. Hauser.

Lady, and gentlemen, will you all stand and be administered the witness oath as is customary in this committee?

Raise your right hands.

[Witnesses sworn.]

Mr. CONYERS. Thank you very much. Please be seated.

We will begin with Ms. Sterste-Perkins. All statements that are prepared will be, without objection, entered in the record, in their full content. We will ask everyone accordingly to please summarize in 5 or 6 minutes, if you can do that.

Ms. Sterste-Perkins is foreign affairs analyst, Foreign Affairs and National Defense Division, Congressional Research Service, and we welcome you to the subcommittee and we invite you to begin our discussion this morning.

**STATEMENT OF DAGNIJA STERSTE-PERKINS, FOREIGN AFFAIRS ANALYST, FOREIGN AFFAIRS AND NATIONAL DEFENSE DIVISION, CONGRESSIONAL RESEARCH SERVICE**

Ms. STERSTE-PERKINS. My statement, Mr. Chairman, will only take—

Mr. CONYERS. Pull the mike up.

Ms. STERSTE-PERKINS. My statement will only take 5 or 6 minutes. If it is all right, I will read it.

Mr. Chairman, I am pleased to present a brief historical summary of the B-1 bomber. It is based on tracking this important Air Force program in my role as an analyst for the Congressional Research Service. My presentation will pay particular attention to representations over time about the aircraft's conventional capabilities.

Until recently, most major decisions concerning the U.S. strategic, long-range bomber fleet were made strictly in terms of what was deemed necessary to fight a nuclear war. For years, both the executive branch and Congress conducted their debates on strategic bombers with only occasional, and tangential, references to conventional war. The Carter administration, which canceled the budding B-1A program after delivery of a few prototypes, decided that money for these bombers would be better spent on developing and building a truly revolutionary, "stealthy" bomber that would be expected to penetrate Soviet air defenses—assumptions about the quality of Soviet air defenses as well as their pace of improvement, were mainly based on the amount of Soviet resources poured into them, not necessarily on objective evaluations of their effectiveness. During the late 1970's, it was felt that the B-52, already a proven system, could take care of not only its existing conventional missions but also any nuclear contingencies that might come up in the foreseeable future.

The 1980's saw a shift in emphasis. President Reagan believed, and indicated by his strategic modernization program, that improvements to existing nuclear war fighting capabilities were more urgently needed and that both the B-1 and the B-2 should be procured. The B-1—now designated the B-1B—was promoted by the

administration as an "interim" strategic bomber, to plug the hole between the B-52's presumably declining strategic capabilities and the B-2's revolutionary and improved capabilities. When procurement funding was being sought for the B-1B, Rockwell, the manufacturer, described it as a "Multi-role bomber aircraft," having the capability of performing the missions of "conventional bomber, cruise missile launch platform, and nuclear weapons delivery system"—in that order—exactly as specified by Congress in the fiscal year 1981 defense authorization bill, sec. 204. The Air Force issues team, in 1982, described the conventional maritime role of the B-1 as "providing collateral maritime support in long range sea surveillance, ship attack, and minelaying." In 1984, the Air Force predicted that the B-1 would act as a force multiplier, complementing conventional forces in mission areas such as counterintervention and air interdiction, as well as maritime support. It appears that one of the ancillary reasons for stressing the multiple missions was to distinguish the B-1B from the future B-2, which at that time was presented as a single mission penetrating nuclear bomber. From the start, however, no attempt was made to construct the B-1B with the ability to carry conventional weapons, nor were any estimates presented of what each conventional munition capability could be expected to cost.

Most of the problems and controversies surrounding the B-1B concerned aspects of the bomber's strategic role. The defensive avionics, for example, were deemed insufficient to deal with Soviet air defenses. Much effort and concern were, and continue to be, expended on dealing with this problem. Problems were also occurring with the nuclear munitions that the aircraft would carry. Over the years, the air launched cruise missile, the advanced cruise missile, and the short-range attack missile all either encountered problems or were canceled or severely modified. By 1986, however, the B-1B aircraft itself achieved initial operating capability.

As the 1990's began, the Air Force pushed to get full funding for the B-2. Part of this push seemed to involve denigrating the B-1—also, perhaps coincidentally, another aircraft that had actually succeeded in accurately dropping bombs carried from distant points—the FB-111, which performed in the 1986 Libya strikes—was retired in the early 1990's, despite the fact that its airframe had decades more of life expectancy.

I recently found out it was perhaps not the FB-111, although it was reported to have been involved in the Libya air strikes. The press and journalists said it was the FB-111. That may be an error. I am not sure.

The B-1B was described as being next to useless, termed by some in the media—not the Air Force—a \$300 million paperweight—and on the verge of retirement, its strategic capabilities downplayed in contrast to those of the B-2. In the spring of 1991, B-2 supporters, including former Defense Secretary Harold Brown, pointed out the billions that could be saved in O&M costs by retiring the B-1B. The Air Force at that time estimated \$8 million per year per B-1B for operations and maintenance. There was a deterioration of the B-1's already flawed image as the elegance and utility of the B-2 were played up. In an October 1991 letter to Senators Nunn and Warner, Rockwell International chairman Donald

Beall pointed out that most of the negative attention received by the B-1B to that point had been related to questions about its nuclear role. He said that comments about its purported conventional inadequacies were simply incorrect, that Congress was cutting back on money for needed modifications, and that "limits on the B-1B's capabilities are limits largely imposed by policy, not by aircraft potential."

After 5 post-IOC years of constant fixes and modifications to enhance nuclear missions, the Air Force turned specific attention to some of the conventional missions envisioned for the plane. In 1991, the commander of operations for the B-1B wing at Ellsworth AFB said that the command had only begun to prepare the bomber for conventional roles in 1990, and its conventional abilities were "just beginning to emerge." Prior to the end of the cold war, the B-1B did not, and in fact could not, participate in the few opportunities that existed to perform conventional missions; e.g., Desert Storm, when the reason given was that the B-1B would have had to be removed from its nuclear alert status. Even though the likelihood of conventional warfare has always been much greater than that of nuclear war, until the 1992 bomber road map, the Air Force did not request significant funding to develop a conventional capability for the B-1B. This tends to support the criticisms widely made in the early 1980's about the need for this aircraft: Namely, that for conventional missions, it made more sense to use other aircraft, and therefore rationalizing B-1B procurement on the basis of conventional capabilities just did not make sense. The Air Force itself, through its armament acquisition policies, seems historically to have relegated conventional capabilities to a low priority.

Now that the B-1 exists, but no longer has a realistic nuclear warfighting function, it must seem prudent to declare a needed role for it; hence the current insistence that it take over some of the roles of the B-52s. Adding pressure is the recent acceleration in the early retirement of the majority of the B-52 fleet, reportedly because of budgetary constraints, as opposed to operational reasons.

The bomber road map of 1992 had envisioned an active force structure of 80 B-52Hs, 80 B-1Bs and 16 B-2s "available to theater commanders." By early 1994, this had been reduced to a total of 32 B-52s, 48 B-1Bs, and 7 B-2s to be "combat coded." At the same time, the Air Force indicated plans to relegate 26 B-1Bs and 30 B-52s to an "attrition reserve", an issue you mentioned in your opening statement. This new status category has yet to be fully defined. The Annual Report to Congress projected a total of 116 deployable bombers. Most recently, in April, a couple of weeks ago, the Air Force announced another plan, consisting of a total of 154 deployable bombers by 1997.

The currently proposed conventional role for the B-1B is envisaged for the relatively distant future—well after the turn of the century. This requires lengthy and costly development and procurement of other systems, as well as significant modifications to the aircraft itself to enable it to carry the proposed munitions. The potential of the B-1B fleet is now being put in one basket: not-yet-developed precision guided munitions. Likewise, its capacity to deliver those weapons will rely on the successful incorporation of a



working defensive avionics system that is far from a certainty. The Air Force states that the conventional mission requires "more robust radar warning and countermeasures than does the nuclear mission." In August 1993, officials reportedly estimated that nearly \$1 billion of the \$2.5 billion conventional conversion program will go to the defensive avionics system.

The Air Force does not envision that system's capability to deal effectively with conventional threats before the next century.

Chief of staff McPeak has said that the biggest challenge will not be to modify the bombers, but to develop the munitions themselves. He has also said that the decision has not been made whether all of the B-1Bs should be modified for conventional missions. Possible use of existing off-the-shelf armaments has apparently been rejected. The question could be asked, what role, if any, could the B-1B perform if war broke out next week or next year, or in the next 5 years? It seems that only the Mk-82 500 pound dumb conventional bomb could be used, and possibly a cluster bomb after a couple of years. The number of B-1Bs that have been or will be configured to drop these bombs is not known publicly.

In retrospect, it could be said that the "bomber modernization" program that was mostly funded during the 1980's was, in fact, a fairly basic air frame construction program. At the end of the process, and having spent some \$70 billion for new bombers, we are still relying on B-52s to perform actual long range bomber missions. The fact that the B-1's IOC date was 1986, nearly a decade ago, makes this observation even more striking.

That is the end of my statement. Thank you.

Mr. CONYERS. Thank you very much.

I now call on the General Accounting Office represented by Mr. Louis Rodrigues, who since 1970 has served in a number of capacities; but this morning he is here as Director for Systems Development and Production Issues of GAO's National Security and International Affairs Division.

He has with him Mr. Virgil Schroeder and Mr. Daniel Hauser from regional offices. We welcome you back to the committee. We would like you to proceed, summarizing your testimony, please.

**STATEMENT OF LOUIS J. RODRIGUES, DIRECTOR FOR SYSTEMS DEVELOPMENT AND PRODUCTION ISSUES, NATIONAL SECURITY AND INTERNATIONAL AFFAIRS DIVISION, U.S. GENERAL ACCOUNTING OFFICE, ACCOMPANIED BY VIRGIL N. SCHROEDER, SENIOR EVALUATOR, KANSAS CITY REGIONAL OFFICE; AND DANIEL J. HAUSER, SENIOR EVALUATOR, CINCINNATI REGIONAL OFFICE**

Mr. RODRIGUES. Mr. Chairman and members of the subcommittee, I am pleased to be here today to discuss the B-1B bomber program. Transitioning the B-1 from a nuclear to a conventional role has increased the requirements placed on the bomber, primarily in terms of maintaining its mission capability after repeated conventional sorties. The extent to which the B-1B will be able to meet the increased requirements has not yet been determined. With that backdrop, I will focus my remarks on the B-1B force structure, the Conventional Mission Upgrade Program, the status of some of the

bomber's operational problems, and the congressionally mandated 6 month operational readiness assessment.

The Air Force bomber road map, presented to the Congress in 1992, recognizes that U.S. national security will increasingly depend on conventional bombers, and states that the B-1 will be the backbone of the conventional bomber force. Using Desert Storm experience as an example of future requirements, the bomber road map identified over 1,250 target elements that must be destroyed in the first 5 days of a war to provide maximum support to a theater commander. The Air Force estimated that the B-1Bs and B-52s could destroy about 300, or 24 percent, of the target elements. That destruction rate, as limited as it is, assumed a theater commander would have about 80 B-1Bs and 80 B-52s, with each fleet capable of maintaining a 75 percent mission capable rate. According to the bomber road map, after installation of the precision guided munitions and other enhancements planned in the B-1B Conventional Mission Upgrade Program, the bomber force was expected to be able to destroy all 1,250 plus target elements.

Although the 1,250 plus target elements are still considered valid, the bomber force available to a theater commander is being reduced significantly. According to the Air Force, because of budget constraints, and the current lack of precision guided munitions, the number of B-1Bs available to theater commanders will be reduced from 84 to 60. Likewise, the number of B-52s is being reduced. To accomplish the B-1 reductions, the Air Force is moving 24 combat coded aircraft and two backup aircraft to the attrition reserve category, increasing the total attrition reserve from 1 to 27 aircraft.

The attrition reserve category is used to backfill combat coded and backup aircraft inventory in the event the fleet is attrited through peacetime or combat losses. These aircraft are to be configured, modified, maintained, and flown the same number of hours as combat coded bombers. The Air Force, however, will not have to fund the aircrews and support needed for combat operations for these aircraft.

The Air Force plans to bring the attrition reserve aircraft back into the combat forces when precision guided munitions start to become available, around the year 2001, eventually bringing the total number of combat coded B-1Bs to 72.

Also, the Air Force would then be able to retire the F-111s that are being retained for their precision guided weapon capability until the B-1B attained that capability.

Until 1991, the B-1B was dedicated to nuclear deterrence and was optimized for the nuclear role. To date, the B-1B has never had a conventional capability beyond the ability to deliver 500 pound gravity bombs, and its fully mission capable rate has been zero due to the lack of an effective electronic countermeasures system.

To accomplish the change to conventional missions, the Air Force is implementing the Conventional Mission Upgrade Program, which involves upgrading both the B-1B electronic countermeasures and weapons delivery systems and adding an antijam radio. The electronic countermeasures system is planned to be upgraded to enhance survivability against world wide threats by improving situational awareness and jamming functions and by im-

proving the system reliability and maintainability. The weapons delivery modifications will add the following capabilities and precision guided munitions: Additional unguided weapons—cluster bombs; joint direct attack munition [JDAM]; Naval mines; joint stand off weapon [JSOW]; tri-service stand off attack missile [TSSAM]; standard electronic interface between the aircraft and planned precision guided munitions—known as class II MIL STD 1760; increased computer memory and processing speed needed for delivering precision guided munitions; and global positioning system [GPS].

The Conventional Mission Upgrade Program has been restructured due to fiscal years 1994 and 1995 cuts. As a result, the start and completion of the upgraded electronic countermeasures system are being delayed. The electronic countermeasures system is now scheduled for a limited operational capability and full operational capability in February 2003 and June 2007, respectively, which is several years after some of the precision guided weapons are planned to be available.

Without the upgraded electronic countermeasures system capability, B-1B survivability and, therefore, effectiveness to deliver precision guided munitions are questionable.

Having said that, I think it is necessary to comment on the status of the development programs for the precision guided munitions. In February 1993 we reported that, if delays were encountered in developing these precision guided munitions, the planned conventional capabilities of the B-1B would likewise be delayed. In fact, delays have been encountered. For example, the original limited operational capability for JDAM, the first precision guided munition to be installed on the B-1B, was estimated to be August 1999.

That date has slipped to November 2001. We are currently reviewing the development programs for each of the precision guided munitions planned to be carried by the B-1B and will be reporting more detailed information at the completion of that work.

The cost of the Conventional Mission Upgrade Program has grown. According to the bomber road map, the program was estimated to cost about \$2.5 billion. The current estimated cost is about \$2.9 billion.

The B-1B has experienced several problems that have, at times, limited its use. Spare parts shortages and maintenance problems have caused fewer aircraft to be combat capable than desired. About 40 B-1Bs are currently capable of performing combat missions. This equates to a mission capable rate of about 56 percent, as compared to the Air Force objective of 75 percent.

Engine problems during the past few years have, on occasion, prevented some aircraft from flying because they did not have the required four engines, and spare engines to support war readiness generally have not been available. As a result, the Air Force has identified a need for several engine modifications, which are expected to cost about \$83 million. These modifications are expected to improve engine reliability and reduce the need for unscheduled engine removals. Although engine availability has recently improved and all aircraft now have the required four engines, the Air Force is still having difficulty meeting its war readiness spare en-



gine requirements. During March 1994, only 18 of the required 29 war readiness spare engines were available. According to officials at the Air Logistics Center at Tinker Air Force Base, engine availability problems are expected to continue during the next several years as engines are removed for modifications and safety inspections. Engine availability is expected to improve over the longer term as the needed modifications are completed. Because the engine modifications are not expected to be completed until around 2000, it is too soon to tell how effective the modifications will be.

The B-1B has also experienced instances of structural cracking. The nose landing gear, shoulder longeron, and more recently, the horizontal stabilizer have experienced problems with structural cracking. The nose landing gear and longeron problems are believed to be fixed. The horizontal stabilizer, however, has a serious cracking problem. The Air Force has concluded that all 95 aircraft will require repair. While the Air Force believes the aircraft are flyable, some may require flight restrictions until repairs are made. The estimated cost of these repairs is \$55 million, with repairs to begin in March 1995 and end in the year 2000. I want to emphasize, however, that these are early estimates and, therefore, could change.

The Congress has expressed its concerns with the Air Force's inability to achieve the planned mission capable rates for the B-1B fleet. Specifically, in an attempt to address how much improvement is needed and how much it will cost to achieve the required 75 percent mission capable rate, the fiscal year 1994 Defense Authorization Act directs the Air Force to conduct a B-1B operational readiness assessment.

Our work indicates that the Air Force is committed to conducting the legislatively required assessment. The assessment will be conducted at Ellsworth Air Force Base from June 1, 1994, through November 30, 1994. A 2-week portion of the assessment will be conducted at the Air Industrial Center in Roswell, NM, to simulate the operational capability of the B-1B when deployed to a forward operating base.

We have reviewed the Air Force's assessment plan, and our future work will be to ascertain whether that assessment is carried out in accordance with the plan. We believe the assessment will provide the Congress and the Department of Defense a better basis than has heretofore been available for measuring the deployability and supportability of the B-1B aircraft. That, in turn, will provide for more informed decisions on one, committing funds for upgrading the B-1B bomber and two, defining the future conventional roles of the bomber force.

Mr. Chairman, this concludes my statement. I will be happy to answer any questions you or members of the subcommittee may have.

[The prepared statement of Mr. Rodriguez follows:]

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United States General Accounting Office

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GAO

Testimony

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Committee on Government Operations,  
House of Representatives

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AIR FORCE BOMBERS

Conventional Capabilities of  
the B-1B Bomber

Statement of Louis J. Rodrigues, Director for Systems  
Development and Production Issues, National Security and  
International Affairs Division



Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to assist the Subcommittee in its considerations of the capabilities of the B-1B bomber.

Let me say at the outset that, in our view, the jury is still out on the question of just how effective the B-1B aircraft will be as a conventional bomber. Transitioning the aircraft from a nuclear to a conventional role has increased the requirements placed on the bomber -- primarily in terms of maintaining its mission capability after repeated conventional sorties -- and the extent to which the B-1B will be able to meet the increased requirements has not yet been determined. With that backdrop in mind, I will focus my remarks today on the B-1B force structure, the Conventional Mission Upgrade Program, the status of some of the bomber's recently reported operational problems, and the congressionally mandated 6-month operational readiness assessment.

As you know, as the United States draws down its overseas presence in response to the end of the Cold War, the Air Force views its long-range bomber force as critical to its ability to be able to deliver a conventional strike anywhere on the globe within hours of receiving orders from the National Command Authorities. Currently, this capability is provided by the B-52 and, to a lesser extent, by the B-1B. The B-52 can carry a wide range of conventional munitions, such as cluster bombs, general purpose bombs, and sea mines. It can also deliver guided missiles that can be launched at standoff range from outside enemy air defenses.

In contrast, the B-1B has limited conventional capability. It can currently carry only one type of conventional munition--the

500-pound unguided bomb. Currently, about 40 B-1Bs are capable of performing combat missions. As you are aware, the B-1B has been designated by the Air Force as the backbone of the conventional bomber force and is in the process of being transitioned from primarily a nuclear to a conventional bomber.

#### RESULTS IN BRIEF

The number of B-1Bs, including training aircraft, available to theater commanders is being reduced from 84 to 60. Likewise, the number of B-52s available for combat is being reduced--from about 80 to 32. The reduced bomber force will not be able to destroy the 24 percent of the target base that the Air Force expected to be destroyed by the combined B-1B/B-52 force in the first 5 days of a war. The Air Force acknowledges that there is risk associated with the downsized force in that it does not meet existing bomber requirements. The Air Force plans to reduce the risk by eventually adding precision guided munitions, otherwise enhancing the B-1B capabilities through the Conventional Mission Upgrade Program, and bringing back some of the bombers to the combat ready force.

The Conventional Mission Upgrade Program is encountering delays and cost increases. The program was originally scheduled to be completed in 2005, but it is currently scheduled to be completed in 2007. The cost has increased from about \$2.5 billion to about \$2.9 billion.<sup>1</sup> A major component of the program, an upgraded electronic countermeasures system, is now planned to be installed after some of the precision guided munitions slated for the B-1B are expected to be operational. This raises concerns about the

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<sup>1</sup>Of the \$2.9 billion, about \$1.28 billion is for an upgraded electronic countermeasures system and about \$1.62 billion is for the integration of precision guided munitions and their related equipment.

bomber's survivability and, in turn, its effectiveness in the event it is required to deliver precision guided munitions before the upgraded electronic countermeasures system is available. On the other hand, there is a question of whether the precision guided munitions planned for the B-1B will meet current schedules.

As you know, we have reported on the problems that limited the use of the B-1B at times. These include engine and aircraft availability and structural cracking. Although the number of available spare engines recently increased, the Air Force still does not have enough serviceable spare engines to meet its war readiness requirements. In terms of the structural cracks, corrective actions have been implemented on some of the problems; however, some corrective actions are still pending. Because of the B-1B's limited availability, the Congress directed the Air Force to conduct an operational readiness assessment of the aircraft. We are required to monitor and report on that assessment upon its completion.

#### B-1B FORCE STRUCTURE

The Air Force Bomber Roadmap, presented to the Congress in 1992, recognizes that U.S. national security will increasingly depend on conventional bombers, and states that the B-1B will be the backbone of the conventional bomber force. Using Desert Storm experience as an example of future requirements, the Bomber Roadmap identified over 1,250 target elements<sup>2</sup> that must be destroyed in the first 5 days of a war to provide maximum support to a theater commander. In 1992, the Air Force estimated that the B-1Bs and B-52s could destroy about 300, or 24 percent, of

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<sup>2</sup>These target elements were derived from a hypothetical list of 238 initial, high priority targets which were further divided into the 1250+ target elements. They include, for example, aimpoints or corners of buildings.

the target elements. That destruction rate, as limited as it is, assumed a theater commander would have about 80 B-1Bs and 80 B-52s, with each fleet capable of maintaining a 75-percent mission capable rate. According to the Bomber Roadmap, after installation of the precision guided munitions and other enhancements planned in the B-1B Conventional Mission Upgrade Program, the bomber force was expected to be able to destroy all 1,250 plus target elements.

Although the 1,250 plus target elements are still considered valid, the bomber force available to a theater commander is being reduced significantly. According to the Air Force, because of budget constraints, and the current lack of precision guided munitions, the number of B-1Bs available to theater commanders will be reduced from 84 to 60 by about August 1995. The following table shows the planned B-1B force structure by that date.

Table 1: B-1B Force Structure  
in August 1995

<u>Combat aircraft</u>		<u>Training</u>	<u>Test</u>	<u>Backup inventory</u>	<u>Attrition reserve</u>	<u>Total</u>
<u>Active</u>	<u>Air Guard</u>					
38	10	12	2	6	27	95

To give you a better picture of the status of the total B-1Bs in the inventory after the Air Force's reassignment plan is completed, it might be beneficial at this point to briefly describe the various aircraft categories that are listed in the table.

As shown in the table, the Air Force has five inventory categories of aircraft: combat coded aircraft, training aircraft, test aircraft, backup aircraft inventory, and attrition reserve aircraft. Of these five categories, only the combat coded aircraft (which include the 38 aircraft in the active force



and the 10 in the Air National Guard) have aircrews, maintenance personnel, bomb loading crews, and mission readiness spares packages specifically assigned to them. The training and test aircraft categories are self-explanatory. The backup aircraft inventory is comprised of those aircraft that are required to support the fleet during scheduled and unscheduled maintenance, modifications, inspections, and repairs.

The attrition reserve category is probably the least familiar. The 27 aircraft in this category are to be used to backfill combat coded aircraft and the backup aircraft inventory in the event the fleet is attrited through peacetime or combat losses. These aircraft are planned to be configured, modified, maintained, and flown the same number of hours as the 48 bombers available to theater commanders. The Air Force, however, will not have to fund the aircrews and support needed for combat operations for these 27 aircraft. The Air Force plans to bring the attrition reserve aircraft back into the combat forces when precision guided munitions start to become available, around the year 2001, eventually bringing the total number of combat coded B-1Bs to 72. Also, the Air Force would then be able to retire the F-111s that are being retained for their precision guided weapons capability until the B-1B attained that capability.

#### B-1B CONVENTIONAL MISSION UPGRADE PROGRAM

Until 1991, the B-1B was dedicated to nuclear deterrence and was optimized for the nuclear role. To date, the B-1B has never had a conventional capability beyond the ability to deliver 500-pound gravity bombs, and its fully mission capable rate has been zero due to the lack of an effective electronic countermeasures system. The aircraft now needs to be modified for world-wide conventional missions.

To accomplish the change to conventional missions, the Air Force

is implementing the Conventional Mission Upgrade Program, which involves upgrading both the B-1B electronic countermeasures and weapons delivery systems and adding an anti-jam radio. The electronic countermeasures system is planned to be upgraded to enhance survivability against world-wide threats by improving situational awareness and jamming functions, and by improving the system reliability and maintainability. The weapons delivery modifications will add the following capabilities and precision guided munitions.

- Additional unguided weapons (cluster bombs).
- Joint Direct Attack Munition (JDAM).
- Naval mines.
- Joint Stand-Off Weapon (JSOW).
- Tri-Service Stand-off Attack Missile (TSSAM).
- Standard electronic interface between the aircraft and planned precision guided munitions (known as Class II MIL-STD-1760).
- Increased computer memory and processing speed needed for delivering precision guided munitions.
- Global Positioning System (GPS).

#### Upgrade Program Schedule and Cost Growth

The Conventional Mission Upgrade Program has been restructured due to fiscal year 1994 congressional cuts and fiscal year 1995 Department of Defense RDT&E cuts. As a result, the start and completion of the upgraded electronic countermeasures system are being delayed. The electronic countermeasures system is now scheduled for a limited operational capability and full operational capability in February 2003 and June 2007, respectively, which is several years after some of the precision guided weapons are planned to be available. For example, JDAM is now scheduled to reach full operational capability before the electronic countermeasures system installations are planned to

begin. Without the upgraded electronic countermeasures system capability, B-1B survivability and, therefore, effectiveness to deliver JDAM and other precision guided munitions, are questionable.

Having said that, I think it is necessary to comment on the status of the development programs for the precision guided munitions that are planned for the B-1B. In February 1993 we reported that, if delays were encountered in developing these precision guided munitions, the planned conventional capabilities of the B-1B would likewise be delayed.<sup>3</sup> In fact, delays have been encountered. For example, the original limited operational capability for JDAM, the first precision guided munition to be installed on the B-1B, was estimated to be August 1999. That date has slipped to November 2001. Similarly, in October 1993, we reported that the planned schedules for developing the TSSAM system might not be met and that there was some uncertainty as to which launch platforms would be capable of firing TSSAMS.<sup>4</sup> We are currently reviewing the development programs for each of the precision guided munitions planned to be carried by the B-1B and will be reporting more detailed information at the completion of that work.

The cost of the Conventional Mission Upgrade Program has grown. According to the Bomber Roadmap, the program was estimated to cost about \$2.5 billion. The current estimated cost is about \$2.9 billion.

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<sup>3</sup>STRATEGIC BOMBERS: Adding Conventional Capabilities Will Be Complex, Time-Consuming, and Costly (GAO/NSIAD-93-45, Feb. 5, 1993).

<sup>4</sup>MISSILE DEVELOPMENT: TSSAM Production Should Not Be Started as Planned (GAO/NSIAD-94-52, Oct. 8, 1993).

STATUS OF OPERATIONAL PROBLEMS

The B-1B has experienced several problems that have, at times, limited its use. Spare parts shortages and maintenance problems have caused fewer aircraft to be combat capable than desired. As I said earlier, about 40 B-1Bs are currently capable of performing combat missions. This equates to a mission capable rate of about 56 percent, as compared to the Air Force objective of 75 percent.

Engine problems during the past few years have, on occasion, prevented some aircraft from flying because they did not have the required four engines, and spare engines to support war readiness generally have not been available. As a result, the Air Force has identified a need for several engine modifications, which are expected to cost about \$83 million. These modifications are expected to improve engine reliability and reduce the need for unscheduled engine removals. Although engine availability has recently improved and all aircraft now have the required four engines, the Air Force is still having difficulty meeting its war readiness spare engine requirements. During March 1994, only 18 of the required 29 war readiness spare engines were available. According to officials at the Air Logistics Center at Tinker Air Force Base, engine availability problems are expected to continue during the next several years as engines are removed for modifications and safety inspections. Engine availability is expected to improve over the longer term as the needed modifications are completed. Because the engine modifications are not expected to be completed until around 2000, it is too soon to tell how effective the modifications will be.

The B-1B has also experienced instances of structural cracking. The nose landing gear, shoulder longeron, and more recently, the horizontal stabilizer have experienced problems with structural cracking. The nose landing gear and longeron problems are

believed to be fixed. The horizontal stabilizer, however, has a serious cracking problem. The Air Force, after inspecting about 25 percent of the fleet and finding all with cracks, has concluded that all 95 aircraft will require repair. While the Air Force believes the aircraft are flyable, some may require flight restrictions until repairs are made. The estimated cost of these repairs is \$55 million, with repairs to begin in March 1995 and end in the year 2000. I want to emphasize, however, that these are early estimates and, therefore, could change.

#### B-1B OPERATIONAL ASSESSMENT

The Congress has expressed its concerns with the Air Force's inability to achieve the planned mission capable rates for the B-1B fleet. Specifically, in an attempt to address how much improvement is needed and how much it will cost to achieve the required 75-percent mission capable rate, the fiscal year 1994 Defense Authorization Act directs the Air Force to conduct a B-1B operational readiness assessment.

The assessment is intended to determine the operational readiness rate that one B-1B bomber wing could sustain if that wing were provided the full complement of spare parts, maintenance equipment, maintenance manpower, and logistics support equipment. Our work indicates that the Air Force is committed to conducting the legislatively required assessment. The assessment plan, which has been submitted to the congressional defense committees, indicates that the assessment will be conducted at Ellsworth Air Force Base from June 1, 1994, through November 30, 1994. A 2-week portion of the assessment will be conducted at the Air Industrial Center in Roswell, New Mexico, to simulate the operational capability of the B-1B when deployed to a forward operating base.

Our office is required by the legislation to monitor and report

on the implementation of the operational readiness assessment. We have reviewed the Air Force's assessment plan, and our future work will be to ascertain whether that assessment is carried out in accordance with the plan. As we stated in our January 1994 report,<sup>5</sup> we believe the assessment will provide the Congress and the Department of Defense a better basis than has heretofore been available for measuring the deployability and supportability of the B-1B aircraft. That, in turn, will provide for more informed decisions on (1) committing funds for upgrading the B-1B bomber and (2) defining the future conventional roles of the bomber force.

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Mr. Chairman, this concludes my statement. I will be happy to answer any questions you or members of the Subcommittee may have.

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<sup>5</sup>STRATEGIC BOMBERS: Issues Relating to the B-1B's Availability and Ability to Perform Conventional Missions (GAO/NSIAD-94-81, Jan. 10, 1994).



Mr. CONYERS. Thank you, Mr. Rodrigues.

Our final witnesses Major General Henry and Brigadier General Richards are here on behalf of the Air Force. Major General Henry is Acting Deputy Chief of Staff for Plans and Operations, a highly decorated master navigator with more than 300 combat missions in F-4s, was in Desert Storm as Director of Electronic Combat, and was with the U.S. Central Command Air Force headquarters in Saudi Arabia.

As Director of Long-Range Power Projection Programs, Brigadier General Richards is responsible for strategic planning and programming options that ensure the Air Force's acquisition of new weapons systems and system upgrades. He, too, has received numerous awards for meritorious service.

We would like—is it Major General Henry? Will you present the statement?

General HENRY. Yes, sir. I will have a short statement. It will not go 5 minutes. Then General Richards will have a statement.

Mr. CONYERS. You both have statements?

General HENRY. They are both short.

**STATEMENT OF MAJ. GEN. LARRY L. HENRY, DIRECTOR OF OPERATIONAL REQUIREMENTS, DEPUTY CHIEF OF STAFF, PLANS AND OPERATIONS, U.S. AIR FORCE**

General HENRY. Mr. Chairman, thank you for the opportunity to discuss the B-1 bomber with you and for the kind introduction.

We feel the B-1 is a vital part of this Nation's power projection capability and share your desire to have a fair and open and discussion and balanced hearing on the B-1. As Mr. McCandless said, there is a lot of negative publicity about the bomber; and, in fact, today in this hearing we didn't get a lot of positive looks at it at all. We would, as the Air Force, those responsible for flying men into combat, would offer our side of that story and our view of what the airplane can do and where it will go in the future.

Since our last opportunity, sir, to bring Air Force people over and testify on the B-1, we began in earnest to transition it from its nuclear SIOP role into a conventional-only weapons system. It will be totally conventional by about the 1998 timeframe in its new role. It set impressive speed records discussed earlier, 11 recently, and just to sum up the last one, over 6,200 mile distance, we averaged 600 miles per hour. We have taken the airplane and flown it conventional roles in Korea, in Egypt, and we have launched from the United States, dropped in those theaters and recovered in the United States and gone all the way around the world and dropped weapons and recovered in the United States in two sorties.

This week, we have two major exercises involving the B-1 which originate in the central United States. They will attack in the Mediterranean and Middle East targets, return to the United States to recover in theater, regenerate and attack in theater. This aircraft is extremely important to theater CINCs.

When I hear Air Force operators talk to people about the B-1 and the people responsible for war plans like Gen. Howell Estes in Korea, he emphasizes his need for bombers, particularly the B-1. The B-1 is replacing the B-52 as the workhorse of our fleet and

I would like to give you just a little bit of an idea. It has been alluded to, why would we want to replace the B-52 with the B-1?

The operator looks at this from a combat perspective and not an analytical one in total.

The B-52 is a fine airplane and has served us well. But the B-1 can fly 50 percent faster at low altitude and from 180 knots to 200 miles per hour faster in a medium altitude penetration role. It has three times the maneuverability, which makes the survivability go up and it has the ability to maneuver and accelerate from the threat which the B-52 does not.

In addition, it can drop 84 MK-82s versus 45 from the B-52H. The collision problem that has been alluded to with the bombs has been fixed with a barometer setting change. We are no longer losing bombs. We are able to drop all our bombs, all 84 of them, off in the stick length of 2,000 feet. This will allow us to use the airplane effectively against the types of targets the MK-82 bombs are useful for, such as troops, industrial complexes, rail yards, and we could have used this very nicely on the Republican Guards in Iraq.

The key to making this aircraft more versatile and lethal has been because of integration on the airplane. We will be able to carry 24 JDAMS on each B-1 and be able to deliver all of those bombs on 24 different target impact points on an airplane field, on a single air field. So this is very important to us in air field attack.

We will bring on the JSOW weapon and the TSSAM in the year 2004. Until we have this, we will put B-1s and B-52s in attrition reserve. We will modify them at the combat coded rate. We will only fly them at a very low rate, but this is not to the penny. We will fly them, but rotate them in the fleet and so at least the number of attrition reserve airplanes will be flown at a lower rate than the mission capable ones and the primary ones you are funding.

We will also transfer some conventional bomber capability into our reserve components. The B-52s will go to Barksdale, the B-1 to McConnell and Warner Robins.

The mission capable rate has been discussed. I think that is something we can explore more indepth. I would like to, beyond the statement, be able to talk about what mission capable rate is to an operator and how it is computed and how that figures into how we can use the airplane in combat situations.

There was also talk about we will do an operational readiness inspection starting on June 1 for 6 months at Ellsworth and deploy nine B-1s to Roswell for 2 weeks. I tell you the operators that fly this airplane are looking forward to this. They are tired of being maligned. They are tired of hearing their airplane maligned. They are capable of flying the airplane. In their hearts, they feel it will perform well and they are willing to take this problem on.

We do not deny the B-1 has had problems and needs a great deal of work for it to reach its true potential. We do have the capability to package it with other jamming airplanes and lethal suppression airplanes to make it effective in combat. This fact has been largely ignored in many instances and it has been portrayed as an either/or situation.

Mr. Chairman, that is not true. That is just not flat true.

Our aviators who know the airplane, sir, are willing to fly it, take it to combat under the conditions we will set out for it and we are willing to bring this bomber up to its national capability.

Thank you for your time, sir.

[The prepared statement of General Henry follows:]

STATEMENT BEFORE THE  
SUBCOMMITTEE ON LEGISLATION & NATIONAL SECURITY  
OF THE  
HOUSE GOVERNMENT OPERATIONS COMMITTEE

4 May 1994

Major General Larry L. Henry  
Acting Deputy Chief of Staff for Plans and Operations  
United States Air Force

Brigadier General James M. Richards  
Director of Long Range Power Projection Programs  
United States Air Force

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HOUSE GOVERNMENT OPERATIONS COMMITTEE

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, thank you for inviting us here today. We welcome this opportunity to provide an update on the B-1, the backbone of our nation's conventional bomber fleet.

Two years ago the Air Force presented the Bomber Roadmap to the Congress. Our vision was to fully develop and exploit the large payload, long range and flexibility of our bombers for modern conventional warfighting. The Bomber Roadmap explained how bombers armed with standoff, precision, and adverse weather munitions can be a key factor in the early days of a major regional conflict. The massive amount of immediate, sustained firepower they bring to the fight will be instrumental in slowing or stopping an aggressor, allowing time for additional U.S. or coalition combat forces to arrive in theater. The Bomber Roadmap also lays out an investment strategy to equip our bomber fleet with these advanced weapons that also serve to significantly enhance their deterrent value against potential future aggressors.

The 1993 DoD Bottom-Up Review emphasizes the advantages of long-range bombers capable of rapidly delivering large payloads of advanced weapons to distant theaters in the early days of a conflict as well as conducting sustained operations from forward operating locations.

The B-1 is crucial to the success of our bomber force and our ability to fight and win two near-simultaneous Major Regional Conflicts. Constituting more than half of our bomber force, B-1s can carry the largest payloads and

can join a typical strike package or operate as an independent penetrator. We would like to show you where we are today with the B-1 and where we are going with planned improvements.

Today, the B-1 supports both strategic nuclear and conventional operations. As the B-2 matures and B-52Gs retire, we plan to transition B-1 taskings to conventional operations. Even today, we are increasing the conventional role of the B-1. B-1 units are tasked to fight in all potential major regional conflicts. By 1996, 60% of all U.S. bombers apportioned to the theater commanders will be B-1s. Our operational B-1 units have had extensive training in conventional operations and are now a familiar sight in joint and allied exercises. For example, during the combined U.S. and Egyptian exercise Bright Star '94, three B-1s flew simulated conventional strike missions in Egypt with F-15Es, F-16s, EF-111s, and Egyptian F-4Es.

Also as part of Bright Star, three B-1s flew a Global Power mission from the U.S., struck a bombing range north of Cairo, and returned to their U.S. bases over 31 hours after takeoff. In fact, Global Power missions have become a routine part of our training schedule. Every bomber wing flies a Global Power mission each quarter, demonstrating our nation's ability to project power anywhere on the globe within twenty-four to forty-eight hours. The most dramatic demonstration of this capability occurred in August 1993 when two B-1s from Ellsworth AFB, South Dakota circumnavigated the globe during an exercise named Global Enterprise. The crews departed Ellsworth and struck targets on a European bombing range before recovering on the island of Diego Garcia in the Indian Ocean. After refueling and a crew change, the aircraft flew to a Canadian range for practice bombing missions



before landing back at Ellsworth AFB. Mission durations for the B-1s were 24 hours and 22 hours, respectively. This is just one way the Air Force provides our nation with global reach and global power. On April 7th, two B-1s from Grand Forks AFB, North Dakota again demonstrated their long range, high performance capability by tentatively setting 11 new world records. While the validation process is not yet complete, three of the records were for the fastest speed over a 10,000 kilometer course for various weight categories.

To further demonstrate the B-1's tremendous conventional warfighting potential, we will soon conduct the B-1 Operational Readiness Assessment, in compliance with congressional direction. The Air Force developed an aggressive test plan for this assessment, which was delivered to Congress on 24 March 1994. In fact, we intend to complete the assessment one full year before the deadline required by law. We have chosen the 28th Wing at Ellsworth AFB as the test unit. The assessment will begin just over one month from now, on 1 June 1994. Towards the end of the assessment in November 1994, nine B-1s will deploy to Roswell, New Mexico for two weeks to verify their ability to operate at wartime flying rates. The B-1 has consistently demonstrated its ability to deploy and fly at high operating tempos in exercises over the past two years. Our aircrews and maintenance troops are proud of the B-1, and confident they will demonstrate it is capable of becoming the backbone of our future bomber force. We are eager to prove that the B-1 is sustainable and that the B-1 upgrades are a smart investment.

One of our goals for this hearing is to clarify B-1 force structure decisions reflected in the FY1995 budget request. B-1 force structure changes include a drawdown of two active squadrons and introduction of the B-1 into the Air National Guard. The active fleet drawdown of two B-1 squadrons and the retention of those aircraft in the attrition reserve inventory is motivated by budget constraints. Although the number of B-1s in the total inventory will remain constant at 95, the use, placement and categorization of those aircraft has changed considerably.

Many factors influenced these force structure decisions. After reviewing our post-Cold War military requirements, we increased the role of the bomber force in conventional operations. As stated earlier, the B-1 will be fully committed to the theater commanders for conventional operations. The inherent bomber characteristics of immediate response, global reach, massive payload, and flexibility provide us with credible military presence despite fewer overseas bases and reduced force structures. This capability was showcased in the first days of the Gulf War, when B-52 bombers from Barksdale AFB, Louisiana were the first attack aircraft to launch in Operation Desert Storm. Flying the longest combat sorties in history, they attacked military communications and power generation facilities with conventional cruise missiles before returning to Barksdale. As General McPeak has stated, this is a new definition of presence -- the rapid deployment feature of air and space forces require any hostile power to think about U.S. forces being less than 20 hours away. We have that same flexibility with the B-1.

Bombers are a crucial part of our defense strategy to conduct military operations in two near-simultaneous Major Regional Conflicts. By providing

an immediate response to blunt the initial enemy assault, bombers allow follow-on forces time to deploy and engage. Later in the conflict, bombers give theater commanders access to massive firepower that can be used to attack strategic targets, prepare the battlefield and attack enemy forces well before they come in contact with friendly troops. For example, in Desert Storm our B-52Gs delivered 30% of the total tonnage of munitions, even though they comprised only 3% of the total combat aircraft. The B-1, which will be capable of carrying twice as many Joint Direct Attack Munitions as the B-52H, can offer the theater commander an even greater concentration of firepower.

The Bottom-Up Review recognized the value of bombers equipped with advanced munitions. To realize the Bottom-Up Review strategy, the Defense Planning Guidance tasked the Air Force to commit 100 heavy bombers to fight a single Major Regional Conflict by FY1999. Should a second conflict begin, our bombers have the flexibility to swing to the second theater, if required.

Today, the Air Force has a total of 95 B-1s. In the FY1995 budget cycle, B-1 funding was reduced and some aircraft were designated to move into the category of attrition reserve. Attrition reserve aircraft will receive regular maintenance and we intend to complete all modifications. These aircraft will be rotated through the active flying schedule on a routine basis. However, aircrews, ground crews, and spares are not funded. As the B-1 conventional upgrades near completion, we could restore full manning and flying hours to these attrition reserve aircraft. Retaining additional B-1s in the active inventory as attrition reserves is a cost effective way to hedge

against an uncertain world, preserve force structure against the future retirement of other aircraft, and reduce the risk of ongoing development programs.

While the B-1 is currently limited to employing Mk-82 500-pound bombs, operational experience with this weapon is now wide-spread. Maintenance crews and weapon load teams have demonstrated the capability to ready their aircraft for assigned missions on a daily basis, rearming a B-1 within hours. Aircrews are experienced in Mk-82 delivery tactics from high and low altitudes. The Mk-82 is effective against area targets such as massed enemy forces and light vehicles, railroads, storage areas, and port facilities. Together, these targets constitute approximately one quarter of the expected target base.

As we field additional capabilities, the B-1's potential contributions in regional conflicts will increase accordingly. Therefore, one of our most pressing needs remains fielding the planned precision weapons capabilities included in the Conventional Mission Upgrade Program. The FY1995 RDT&E budget is crucial to this effort.

The B-1 Conventional Mission Upgrade Program, or CMUP, will improve the B-1's conventional weapons capability and electronic countermeasures (ECM). Although budgetary pressures and congressional direction have resulted in some schedule changes since the CMUP began in FY1993, the fundamental B-1 upgrade plan closely mirrors the plan outlined in the Bomber Roadmap.

We plan to acquire B-1 CMUP enhancements in three phases, investing \$2.9 billion over the next twelve years. Phase I provides the

capability to deliver additional unguided munitions such as the "smart" Sensor Fuzed Weapon. Phase II provides near-precision weapons delivery capability with the Joint Direct Attack Munition (JDAM), allows for future weapons growth, and incorporates improvements to the B-1's defensive avionics system. Phase III integrates standoff precision weapons.

In the near term, Phase I of the CMUP will add Cluster Bomb Unit (CBU) capability, allowing the B-1 to more effectively strike armored vehicles and similar targets. Carrying advanced munitions such as multiple-kills-per-pass sensor fuzed weapons, the B-1 will be key to stopping armored attacks, as highlighted in the Bottom-Up Review. This integration effort is on contract and on schedule; we will achieve our first CBU capability by December of next year.

The second phase of the B-1 CMUP will add JDAM capability and ECM upgrades tailored for conventional operations. Integrating JDAM and Global Positioning System (GPS) equipment onto the B-1 will expand the range of targets vulnerable to the B-1, and will increase strike accuracy to the point where we will gain a one-weapon-per-target potential. The Air Force is also conducting a targeting system demonstration, exploring how to integrate radar and GPS technology to give the B-1 near-precision delivery capability using JDAM munitions.

Planned B-1 ECM enhancements will adapt the bomber's defense penetration capability to the more diverse conventional threat arena. The plan for ECM upgrades remains stable, but modification schedules have been



impacted by FY1994 congressional direction and funding cuts which forced the Air Force to stop ECM risk reduction activities. We plan to restart ECM risk reduction in FY1996, maintaining our strategy to examine several alternatives to obtain the best value system solution.

Under today's fiscal constraints, we expect to achieve JDAM first capability in FY01. The B-1 will be able to employ JDAM effectively without ECM upgrades in higher threat areas by operating in strike packages with other fighter and support aircraft such as the F-4G and EF-111. Providing this flexibility is vital to ensuring that the U.S. gets the most benefit from its reduced force structure. The combination of direct strike capability with JDAM and enhanced aircraft survivability with ECM upgrades, coupled with the B-1's inherent speed and maneuverability, will provide theater commanders with a highly flexible resource that can accurately deliver large payloads in a wide range of threat environments.

Phase three of the CMUP will give the B-1 precision standoff capability with the Joint Standoff Weapon (JSOW) and Tri-Service Standoff Attack Missile (TSSAM). These integration efforts will be completed shortly after the turn of the century. Advanced standoff weapons will allow the B-1 to strike very heavily defended targets, further enhancing its operational flexibility.

The investment required to prepare the B-1 for a larger conventional role has raised some congressional concerns. In particular, aircraft supportability has been a topic of interest. While the B-1 has experienced maturation problems, none have had a significant impact on its operational

effectiveness. In some instances, repairs have been achieved at much lower cost than had been predicted by critics. The B-1's "growing pains" are similar to those experienced by other new military aircraft. Despite well-publicized concerns, the B-1 force has consistently flown at or near its programmed number of flying hours to maintain aircrew proficiency since 1989, with one significant shortfall in 1992.

Another source of congressional concern has been B-1 engine failures. The Air Force has taken aggressive action to address this problem. We have resolved engine fan blade and retaining ring failures by installing a redesigned fan blade retaining ring and a fan blade damper. We have also developed the "Lancer 101" program, a select group of 23 modifications that will increase engine safety, reliability, and maintainability to reduce in-flight engine shut-down rates, turbine shroud burn-throughs, and improve engine cooling. Lancer 101 modifications are fully funded in our budget and should be complete by the end of FY1999.

Although B-1 engine ice damage has received a great deal of attention, extensive analyses indicate that it will not significantly affect the bomber's combat readiness. We have reviewed all anti-ice modification options and their benefits, and have concluded that procuring an anti-icing system is not cost-effective. Readiness spares kits deployed with the bombers can include sufficient tools and equipment to perform timely repairs of engine ice damage as required. The typical ice damage a B-1 may incur does not inhibit or prevent combat mission completion; weather-related restrictions imposed on training flights to minimize engine maintenance would not apply in operational scenarios.

Another well-publicized B-1 concern has been structural cracking. The B-1 has experienced some cracking in its 25 degree shoulder longeron, nose landing gear, uplock bellcrank, and horizontal stabilizer. Cracks in the longeron are being repaired by installing a stiffener to reduce stress in the area; this repair is scheduled for completion by the end of FY1995. Cracking in the nose landing gear can often be machined out. The occurrence of future cracks is eliminated by installing a crack-resistant cross tie. Redesigned bellcrank assemblies are also being installed. B-1 horizontal stabilizer cracking is attributed to improper assembly, aggravated by acoustic vibrations. We have developed a repair concept for the horizontal stabilizer, and will formalize that plan as soon as possible. Neither the engine problems nor the structural cracks have affected B-1 operational capability. In fact, the B-1 fleet has been grounded only five times during its first eight years of service life, fewer groundings than the F-111, F-15, or F-16.

Although the B-1's mission capable rate has not yet attained the Air Force's 75% goal, it has improved steadily since 1988. The average mission capable rate was about 57% for 1993; for March 1994 it was about 63%. We are pursuing initiatives to improve B-1 readiness and tailor our support plan to meet conventional requirements.

Clearly, smart investment through reliability and maintainability initiatives identified over the life of a weapon system will improve system supportability. Our objective is to make those investments which provide the most meaningful paybacks and directly enhance mission effectiveness. We have funded seven such modifications in the FY1995 budget and continue to

evaluate other potential improvements. The upcoming B-1 Operational Readiness Assessment will provide an opportunity to measure how current and planned reliability and maintainability modifications will improve supportability. We will also evaluate data from this effort to identify new reliability and maintainability modifications with the potential to significantly improve B-1 readiness.

The purpose of the 1992 Air Force Bomber Roadmap is to guide the smart investments that will enable the U.S. bomber force to contribute to conventional conflicts in new and significant ways, attacking a much larger segment of the target base with modern advanced weapons. That vision has been refined in the acquisition plans for each of our bombers.

The Bottom- Up Review confirmed the critical role of weapon systems such as long-range bombers that can strike critical targets and stop invading armored forces early in a conflict. Tomorrow's bomber force will be smaller than anticipated by the Bomber Roadmap; the element of risk inherent in force reductions must be minimized by investing in bomber modernization upgrades that marry advanced weapons capability with the long range, large payload capability of bombers. Completing B-1 weapons and ECM upgrades, as well as maintaining adequate aircraft support funding, will help ensure the U.S. has the ability to rapidly project power as needed worldwide through the turn of the century and beyond.

Thank you Mr. Chairman and Members of this committee for the opportunity to present an update on our plans for the B-1. We will be happy to answer your questions.

Mr. CONYERS. Thank you, General Henry.  
General Richards.

**STATEMENT OF BRIG. GEN. JAMES M. RICHARDS, DIRECTOR OF LONG RANGE POWER PROJECTION, SPECIAL OPERATIONS FORCES AIRLIFT AND TRAINING PROGRAMS, OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITIONS**

General RICHARDS. I am proud to be here to report on the status of and plans for the B-1 and its associated conventional mission upgrade program.

As you know, the B-52 is retiring. The B-2 is production limited to 20 aircraft. These facts of life mean the B-1 will bear the lion's share of conventional bomber responsibility in our future conventional conflicts.

Upgrading precision conventional strike capability has then become one of our highest priorities and most urgent needs. I would like to address the three major areas that I think are of most interest to the committee.

First, where are we today in the conventional mission upgrade program?

Second, what is the flight worthiness of the aircraft?

And finally, an assessment of where we are today with respect to the B-1's affordability.

Our conventional mission upgrade program is a three-phased research, development, and procurement effort designed to enhance both the lethality and the survivability of the B-1. It includes integration of precision and near precision weapons, as well as significant upgrade to the electronic countermeasures equipment which will allow more effective penetration of enemy air defenses. The overall program will be accomplished in three phases.

Phase 1, which we are currently in, focuses on enhancing the B-1's conventional capability in the near term. One of the major contributions of this phase will be the integration of the sensor fuzed weapon, our most advanced and effective weapon for stopping massed armor.

In January 1995, we will enter phase 2 to equip the B-1 with advanced weapons now under development. The first of these will be the joint direct attack munition or JDAM. This weapon will give the adverse weather precision strike capability heretofore missing in our bomber force. We plan to restart electronic countermeasures upgrade which has been on hold due to 1994 legislation. We will start that up again in 1996.

Phase 3 of the program will be to add advanced standoff weapons for the B-1. The tri-service standoff attack missile, or TSSAM, will provide precision accuracy from distances over 100 miles from the target. JSOW will enable the B-1 to deliver advanced anti-armor weapons from standoff ranges up to 60 miles. Phase 3 is scheduled to start in 1998.

Let me turn to flight worthiness issues. It is true we have had several fleetwide standdowns in past years. These groundings generated considerable interest and much publicity even though they were ordered as a precaution and lasted only until all the aircraft could be inspected and confirmed safe for flight. This is a routine



procedure. We use it any time we discover a potential problem in any of our aircraft.

It is interesting to note here the B-1, since its initial operational capability back in 1986, has had fewer fleetwide groundings than did, for instance, the F-111, the F-16, or the F-15 during their first 8 years of operation.

Most of the earlier instances of fleetwide standdowns occurred as a result of structural deficiencies which have since been corrected. A more recent incident involved the horizontal stabilizer. This problem was discovered in March 1993 during an inspection following a lightning strike on one of our aircraft at Ellsworth Air Force Base. Fasteners had come loose and over time allowed vibration to cause small cracks in the ribs and spars of the horizontal stabilizer.

Fortunately, this problem does not involve the load bearing portions of the stabilizer and we have been able to replace the fasteners as a short-term fix and are currently in the process of determining the long-term fix.

The B-1's engines have perhaps generated the most interest, certainly the most publicity. As you know, there have been concerns over ice inspection resulting in damaged fan blades and concern with the retainer that holds the fan blades in place. Cooling tubes and engine seals have also been an issue. I am happy to report to you today that while we are still implementing the fixes for these problems, it appears we have worked our way through all of the deficiencies and have the solutions well in hand.

With regard to the number of spare engines available, we at one time had a severe shortfall during the periods we were implementing corrections. As of today, we have 23 spare engines available and are making progress toward achieving our goal of sustaining 29 spare engines for the fleet.

Let me conclude with a few words about logistical support. I can report to you also today that all maintenance plans for base level support can be accomplished at our main operating bases today; 100 percent. Also, 85 percent of our depot support is up and running.

One area we are working to correct is the spare parts backlog which resulted from funding shortfalls in 1993 and 1994. With full funding of our 1995 request, we will take care of that backlog and it will be gone by the end of fiscal year 1995.

So in summary, I want to assure you the B-1 is well on its way to becoming the cornerstone of America's long-range power projection force. Significant enhancements have been, and will continue to be, made in lethality, survivability, and supportability.

Thank you, Mr. Chairman.

Mr. CONYERS. Thank you very much. Both of you are directly under Gen. Mike Loh, Air Combat Command. Recently he said that for \$500 million, I can have 40 more bombers. What do you imagine he may have meant by that?

General HENRY. Sir, let me correct one thing. Both of us are from the air staff in the Pentagon. We do not work for General Loh.

To answer your question, my thought is General Loh was talking about the bombers we will have in the attrition reserve, that we can buy those up and keep them on a full operational capability. He wasn't talking about going and buying new air frames.

Is that the intent of your question, sir?

Mr. CONYERS. Yes. I am just trying to find out what you thought he had in mind? We intend to ask him as well.

General HENRY. I think, sir, it is those aircraft we will fund at a lower level without the air crews and maintenance, that he could buy those airplanes into the full mission status and fund the airplanes and spare parts up to the level it would take to keep them as full-up MC aircraft. That is—I haven't talked to General Loh, but, sir, that is my impression.

General RICHARDS. That is correct.

Mr. CONYERS. You agree, General Richards?

General RICHARDS. Yes, sir.

Mr. CONYERS. Here are the 1991 hearings we had on the B-1B. The Wall Street Journal quoted an Air Force official saying many of the issues now being raised by GAO and the subcommittee have long been resolved. Yesterday, a defense publication cited Air Force and Rockwell sources as saying the subcommittee is resurrecting old technical problems that have been dealt with.

So we all come here under this continuing rubric that everything has been fixed and now we find out history is more or less repeating itself. In 1991, the Wall Street Journal reported the Air Force took great exception to the General Accounting Office's estimate that an additional billion dollars would be needed to bring the B-1B up to its full potential.

Now, we are talking about \$3 billion. So history again proves that we were right and somebody else was wrong.

So we want to hear about the improvements. We want to hear the capability of the aircraft has significantly increased and that is why we hold oversight hearings. We have to make sure this happens. We are up from \$1 billion to nearly \$3 billion. We were told that that was a wild guess on the part of the accounting office.

With mission capable rates, that we all know are 55 percent and zero respectively to date, those mission capable rates were 65 percent and zero in 1991.

What is the capability of the defense avionics system right now?

General HENRY. Sir, may I tell you right now our mission capable rate on the aircraft is running about 64 percent right now. And now when you talk about fully mission capable, that is to have a fully mission capable ECM suite. It is thought the ECM suite is a zero-sum game, either all the way up or no capability.

I will let General Richards talk to the programmatic aspects of the ECM. The operational aspects of it are to take the B-1 to war today. It was designed to be a low altitude, SIOP nuclear penetrator and to defeat the terminal threat with a special type of system.

We put it in as the Berlin wall fell, and the United States changed its position around the world, we went through the forces, and bombers became much more important in presence overseas. We had to take it from that role, sir, and put it into a conventional role and we basically took it up from low altitude to high altitude.

That meant the system now has to deal with many of the systems that the Third World receives from the Soviets or are able to buy from countries in the West which market these type of systems.

The system wasn't designed for that, but it has capability against it. Also, with the airplane's speed differential over the B-52, its maneuvering potential over the B-52 and its acceleration capability, it matches our fighter support forces, such as EF-111s, F-4Gs, and F-16 HARM target systems. If we can put these things together in a package in a theater context, we can employ it.

What we want to do is bring the ECM suite up to speed so it can penetrate a medium threat by itself so it would not require support. If we are going to take it into a medium environment today, we would have to package it with other forces. The United States is not without capability. It is just we are not at the desired level, sir.

Mr. CONYERS. Mr. Rodrigues, my reading is that there is a very limited capability of the defense avionics system as we meet this morning. Is that far off?

Mr. RODRIGUES. I don't think that is inconsistent with what the general is saying. It has very limited capability. What we are talking about is the ability to force package it with other things to be able to do things. I would agree you can force package it and get those kinds of capabilities, but it doesn't exist inherently in the system today to any great degree to allow you to fly it alone from a CONUS to CONUS operation as the general referred to.

Mr. CONYERS. What I see is about a 55 percent mission capable rate. What kind of numbers has GAO produced in that regard?

Mr. RODRIGUES. The mission capable rate is at 64 percent today. We looked at the trend line since 1991. It has continued to improve, but it is fluctuating over time. It has gone up and down. The fact is we are at 64 today. It may go down again tomorrow, but clearly, over a long period of time, it has stayed on a trend line of increasing, and that is a good sign. We hope it continues.

I think, you know, in all of these kinds of issues, there are two things we need to keep in mind. No. 1, starting the beginning of the month, and running for 6 months, the Air Force will put the plane out there and run it through conventional missions to demonstrate its ability to continue to perform and repeat and generate sorties as we are going to require for the future; not the nuclear mission capability of the past, but the conventional mission capabilities of the future and our ability to sustain them and sustainment is critical.

The proof will be in the pudding. Where they are running those tests, the Air Force has been very cooperative. We will be an integral part of that. We will watch it closely.

It will give us the information we need and you need and the Air Force needs to answer specifically what can this thing do and, what will it cost us. Can we meet our 75 percent mission capable rate? Can we, in fact, get the bombs on target? Can we meet the load requirements?

All that information is going to be available over this extensive test period. The other item that is coming up, which I think is also critical, because I think there is some confusion what is happening with the total bomber force size. We were at 180. Now it is down to 116. Some numbers also appeared recently saying 154. Exactly where it comes out, we do not know. I think some of this ties into roles and missions. Clearly, by the establishment of the roles and



missions panel that will be reporting out in the spring of next year, we will have answers on what this will really do and what it will cost to keep making it do that over a period of time in terms of regeneration issues. Is it a good solid platform to depend on?

And the question of how many bombers do we need overall, what is the total mix of B-1s, B-52s, and B-2s, you will have a better basis because there are tradeoffs when you start looking at roles and missions. Bombers aren't the be all and end all to power projections, as we have seen in debates between the Navy and the Air Force.

Mr. CONYERS. Well, those total numbers of aircraft required, no matter what the mix is, will probably be going down, and I agree with you that this next test coming up will be watched by everybody.

Ms. Sterste-Perkins, is your confidence waning on all these promises we have been getting? You have been looking at this aircraft system for years.

How do we keep coming back again and again. It turns out the witnesses that were telling it like it is, were right. And here we are again, we come back again and everybody says well, we shouldn't be looking too hard at this, but we put in much, much more money than we ever thought we would in this operation, far more than we ever expected.

There would have been a completely different attitude in the Congress if we knew then what we know now, so what is your confidence level here?

Ms. STERSTE-PERKINS. It is really hard to say. I am not in a position to be making the ultimate judgment about that. But if you look at the track record of the plane as well as the track record of things like munitions that have been associated with the strategic bombers over the years, you do not have too much reason to be too optimistic. Although as one of the Air Force persons here just said, if it indeed is a fact of life that there are going to be very few B-52s and very few B-2s and if we accept the fact we definitely need a long range conventional aircraft, then you sort of have to almost go with it, it seems to me. What choices do you have?

Unless you are going to keep the B-52s around, and if indeed they do start falling apart, then what do we do? Even though they are mission capable to a much greater extent than the B-1 is at this point, but unless we spend \$2.2 billion each for more B-2s what choice do we have? The Defense Department always says you should not use sunk costs as a decisionmaking basis. It seems to me we put \$30 billion into the B-1. Maybe we ought to continue to put a little bit more into it to see if it will actually do something.

Mr. CONYERS. Mr. Rodrigues.

Mr. RODRIGUES. I would just say there are some options available.

Mr. CONYERS. A B-52 option?

Mr. RODRIGUES. You have the B-52s. They will still be there. They are going to be able to retire some in the next fiscal year. You will have the results of these tests that are upcoming to tell you whether or not the B-1 platform can be, in fact, or is to conventionally capable aircraft. The Air Force clearly and the people who operated this plane believe they have a reliable platform. You refer

to the problems we have had in the past, the difference of opinion; we come back here and end up in different places on these issues. I think this test will be able to answer that question and answer the question of how much it costs to keep it there. You will have that.

You will not have lost your B-52 option at that point. The B-52s are still there. If we have problems with the B-1, that is always still an option at that point. I don't think you will have lost that.

The other thing is they are not doing a significant amount of investment between now and the spring of next year in these upgrades. Clearly, it costs something to keep the bombers operating. But there isn't a lot going in. I think you will have a lot of good options available through the spring of next year when you get the answer to the tests that are coming up. For example, you will have data to help you decide what the future of B-1B, the costs to operate it as well as the implications for a total bomber force and plenty of opportunity to get the information needed to make a good, informed decision on where we go with these aircraft.

Mr. CONYERS. Mr. McCandless.

Mr. MCCANDLESS. Thank you, Mr. Chairman.

I listened to all of this with a great deal of interest.

My first exposure to the Air Force was back in 1971 when I was elected to public office, with the 15th Air Force becoming part of that area in which I found myself.

Over a period of time, I got pretty familiar with the B-52 because being stationed there with the Strategic Air Command. I reminisced when we talk about the B-52H which means then if we have a B-52C, D, E, F, G, and H, we have had seven modified versions of the original plane.

I also remember on occasions where there were cracks, stresses, something like that.

I address the first question to Generals Henry and Richards:

Since we left the simple life of World War II and that type of bomber, have we had a failsafe type of platform, bombing platform that did not have to have modifications? Did not have to have certain things done to it as it aged and became a mature aircraft?

General HENRY. Sir, I think it is a fair assessment to say that in the beginning life cycle of any weapon systems, you sort of go through the shakeout period, where you find out all about it and you fix some things and it gets up on a thing that it sustains itself through its life cycle. Then it starts to age.

Therefore, you are either faced with kind of doing patchwork modifications to keep it ready to fight, or you are faced with an option that says I will do a major structural life and program. I think that is true of every airplane: commercial, military. It is a fact of life I think that maybe Mr. Rodrigues who dealt with these kinds of situations will tell you: analysis shows you that that is close to true.

Mr. MCCANDLESS. Would it be safe to say in the history of the B-52 platform, we have had comparable stresses and strains which have produced a need for modification in the air frame?

General RICHARDS. Sir, that is certainly the case. You mentioned that we have been through several iterations of the B-52s, starting



back with the B, C, and D models. Certainly, in the early years, back in the late fifties, the early sixties, I think we went through some of these same type of things with the B-52. As of late, we are not seeing those kind of things as regularly as the aircraft has matured and we built the later models. Certainly, as General Henry mentioned, you are going to—it is a fact of life, these types of things are going to crop up from time to time in any aircraft.

Mr. MCCANDLESS. Would it be safe then to say that the B-1 is in a maturing process, as the B-52 was during its life cycle?

General RICHARDS. Yes, sir.

Mr. MCCANDLESS. That would apply also to other types of air frames irrespective?

General RICHARDS. Yes, sir. I would agree with that.

Mr. MCCANDLESS. Mr. Rodrigues, do you have any thoughts on that?

Mr. RODRIGUES. I wasn't around in the late 1950's very much, so I cannot talk to what happened back then.

I would point out—I don't want to overplay these; on the other hand, I don't want to downplay them.

Mr. MCCANDLESS. I want straight answers to the problems here as they are perceived. If they are not unique to the B-1, then we should say so and give examples as I think we just did.

Mr. RODRIGUES. Clearly, this plane has had one unique problem in particular. This is the icing problem, which is a function of the design or whatever that was involved there. That is unique. It is not going to go away. You are going to have to live with that. We restrict the operation of the aircraft in noncombat environments at this point. We do certain kinds of inspections. That is, as best we can tell, they will go on for at least the foreseeable future, maybe as long as we own that plane.

Mr. MCCANDLESS. Just a quick sea story. We did modifications on F-4 use. It never saw a factory blueprint because we were in the field and had to get the damned things flying to get the bombs off to take care of people in the front. When we talk about modifications, there are modifications that were made all over the place, Mr. Chairman.

So air frames and their problems are not unique.

I want to move on now to the engine start problem, gentlemen.

Anyone else who has a comment?

I found that interesting that you could not start or it would not be wise to start these engines with certain amounts of liquid on the ground, certain amounts of water, slush, whatever it might be, which is somewhat contrary to what I observe in the way of engine starts in the last 12 years. I have been flying back and forth across the United States, not the least of which in recent times has been snow in Denver and a few other places. I need an explanation of why we have to live with this. What is the problem there that cannot be resolved?

General RICHARDS. Sir, the problem with the engine icing has to do with the Venturi effect in the inlet of the engine as it exists. On the ground, the 47 degree temperature restriction that we have on the airplane today is probably very, very conservative.

Mr. MCCANDLESS. Forty-seven degrees air temperature?

General RICHARDS. And visible moisture. Again, very conservative. We think we can probably reduce that temperature and we are studying that right now to see if that is the case; but I don't think that that is the key point here.

I think what we need to look at is how does this impact our ability to employ the airplane or train with the airplane? The fact is that we have—if we look at 1993, we got 100 percent of our flying time accomplished and 100 percent of our air crew training accomplished throughout the B-1 fleet using this restriction.

Mr. McCANDLESS. General, that is fine; but if you are in a combat situation, and you need this plane and it is at a certain location, that plane and how it was constructed and what it will do or will not do becomes very important to the success or failure of the overall mission. The fact you are able to fly 100 percent of our hours is additional in a training point of view.

From a combat point of view, you want that son of a gun in the air, with hopefully all 84 of those 500 pound bombs headed for a guy who is slushing through the mud.

General RICHARDS. Yes, sir, absolutely. This is strictly a peacetime restriction. For wartime conditions, we would fly the airplane as necessary.

Mr. McCANDLESS. How reliable would that plane be someplace where you had a lot of moisture? Could you get it off the ground?

General RICHARDS. Yes, sir, we can get it off the ground and fly it. What we will have to do is repair minor dings and nicks to the fan blades.

General HENRY. Possibly.

General RICHARDS. Our experience with those instances is that normally we can make those repairs in less than 4 hours. A normal ice fod incident affects probably about six of the fan blades on the first stage and again we can replace those in about 4 hours, which is inside the turn time of a combat turn on the airplane. The reason we do not—we avoid this in peacetime, sir, is strictly to conserve money so we do not have to spend money on extra fan blades.

Mr. McCANDLESS. Ms. Perkins, do you have any comments on that? The subject of the engine starts?

Ms. STERSTE-PERKINS. Excuse me?

Mr. McCANDLESS. We were talking about the—the engine starts and the temperatures and the icing of the engine.

Ms. STERSTE-PERKINS. No, I am sorry.

Mr. McCANDLESS. Mr. Rodrigues, do you have thoughts on that to share with the committee?

Mr. RODRIGUES. Yes, sir. The engine, the general summarized it nicely in terms of what the effect is. You end up having to do, in effect, an unplanned removal on the engine, which affects aircraft reliability. The issue we are talking about is are you going to be able to sustain this plane.

Hopefully, during the upcoming test we will demonstrate what happens when you run into these problems. It also drives the other critical issue, engine availability, the spare engines I referred to. They have had a very difficult time either having spares or maintaining the numbers you would need to support this aircraft in a combat environment.

The primary judgment on that is the need to deal with the blade problems which are not just caused by ice damage but also caused by other foreign object damage. Once again, what the engine sucks up. You could take off, get them off the ground. You can fly the engine. The issue becomes regeneration issues. Can you keep it running at the rates you need to sustain it in combat. Once again, we will hopefully have the information to address this issue based on the upcoming 6-month test period.

Mr. MCCANDLESS. You got into my next question. Relative to capability, readiness, it is my information that if we take the 28th Wing, that they have a 66 percent, as of last month, capability or whatever term you wish to apply to it, fleetwide, 55 percent. On further questioning, it was established that the lack of spare parts availability played a major role in those numbers.

Mr. RODRIGUES, would you agree with that?

Mr. RODRIGUES. Spare parts availability was one of the major contributors? Sure. Yes.

Mr. MCCANDLESS. And that the appropriations for these spare parts were not forthcoming in the budget period needed. So that is where we are; is that a fair statement?

Mr. RODRIGUES. The general would have to answer that. I am not really sure about why the spare parts are not there. Whether we never had the money or used it for other things or whether it was a function of the changeover from nuclear to conventional. What you need to support that, I am really not all that comfortable. Clearly, if you didn't have the spare parts to support the conventional mission—

Mr. MCCANDLESS. Ms. Perkins, do you have anything on that? While she is looking, maybe we can ask the two generals if they have comments on this.

General RICHARDS. Sir, we were underfunded in 1993 and 1994 for interim contractor support which is what we—a portion of our spares are repaired by the contractor.

Mr. MCCANDLESS. Define what you mean by "spares by contractor." Are we talking about engines?

General RICHARDS. Primarily the line replaceable units on the airplane, the black boxes. And other things, but that is the primary, the vast majority.

We were underfunded in 1993 and 1994. In fact, we got ourselves into a condition where we were almost 4,000 backlogged parts on the shelf without the money to have those repaired.

Through a lot of—through effort with the contractor and using some quality efforts, we have brought the costs down for interim contractor support, that is one thing; the Congress has funded us over the last 3 years for what we called deferred logistics. That is the equipment that would allow us to go organic in our depots to make these repairs. That is beginning to take effect. So we are working our way out of this parts backlog. With our full funding request in 1995 for interim contractor support, we will completely work off this backlog.

Mr. RODRIGUES. During this test period, what they are going to do is take the parts and the equipment and the personnel and everything they need from other aircraft around the country and put it out there at Ellsworth to support this aircraft. This wing of air-



craft will determine whether, if they had bought all the stuff they really needed to operate it and test it, could it, in fact, do the job.

So I think we are going to get a chance to really see whether had we done all the things we maybe should have done from the beginning in terms of supporting this aircraft or conventional mission would it, in fact, work. That is what that test is designed to do. I think they are committed, clearly committed to it. We will be watching that closely.

As I said, that will give us the information to put all these types of questions to bed once and forever.

On the engine issues, I don't know. Part of the problem with the engine is some of the modifications that are planned to improve its reliability, some of those things just are not going to be on those planes. If you start having a lot of engine problems, I don't know what that does to the test results. We will be able to look at that as well.

Mr. MCCANDLESS. Finally, you talked about our ECM system. I have to kind of rely upon the staff for that. My understanding is in the original design of the B-1, that it was to have the capability of identifying somewhere in the neighborhood of 50 separate types of radar and the radar source; and if the equipment worked properly, jam what radar source that might be. And that as time progressed, we were able to get up to an 11 figure; is that of the 50? Or was it higher than that in the original go-round?

General RICHARDS. Sir, what you are referring to is correct. The numbers are about correct. What we were trying to get to is for the system to automatically identify and automatically jam properly that number of threats.

We were working on a program in the early nineties, late eighties and early nineties. We called it ECM core. That would have worked us down to the top 10 former Soviet threats. That is when we were working primarily in the nuclear role.

We gave up on that program in 1991, first of all, because the world was changing and we saw we needed to move in a different direction. Our current plan for the ECM suite is to do three things with the ECM. The airplane was designed strictly for low level. That is the way the ECM equipment was designed; so we want to be able to bring the airplane up to mid to high altitude and still have an ECM capability. That is number one.

No. 2, we want to improve the supportability of the system. That is the one thing that costs us, costs our mission capability. The system currently on the airplane is difficult to support.

And the other thing we need to do is add to our situational awareness capability.

What we have today is, as you say, is a capability that is limited; but it is limited primarily in the automatic mode of the system. The operator can still identify a threat out there and manually work jamming onto that threat. I think the B-1 ECM system gets a lot of criticism that is not always deserved. In fact, I flew the airplane last Friday at Ellsworth Air Force base and spent a lot of time back with the defensive systems operator, having him explain to me how he uses the system today.

I came away from that very comforted that the crew members who are flying the airplane today do feel like they have some capability, although certainly we need to improve it.

Mr. MCCANDLESS. We are going to move from low level to medium range which gives then this platform a greater option; right? We are not going to sacrifice what we had in the way of low-level capability or is there a sacrifice when we move to the higher levels?

General HENRY. No, sir. It can still do the low-level mission. That has nothing to do with it. The reason we wanted it to go up to medium altitude, for conventional things, if you go back and look at aircraft losses since World War II, about 85 percent to AAA within about 12 miles of the target below about 5,000 feet.

So we found that in this environment, if we went up, we got out of the AAA. Desert Storm is a great example. We drove the attrition way down because we planned at medium altitude and executed medium altitude. That is why we want to do it. If we need to take it for penetration purposes low, the aircraft will still perform just as well.

Mr. MCCANDLESS. It is my understanding going back to the ECM system for radar jamming or whatever you wish to call it, that as part of this improvement package, that the—your objective is to go to as many as 178 types of radar?

General RICHARDS. We are not going to go to that many types of radar for an automatic capability. We want to be able to—as I say, situational awareness is what we are looking for—to be able to know what is out there, what it is, what kind of threat it is; and either automatically jam that or manually jam it.

Mr. MCCANDLESS. But the plane would have either automatically or manually given the play-out of this capability of identifying and jamming 178 different types of radar?

General RICHARDS. Probably just about any kind of threat that is imaginable today or anything that we foresee coming up in the future.

Mr. MCCANDLESS. This is part of the upgrade package?

General RICHARDS. Yes, sir.

Mr. MCCANDLESS. I have a bundle of questions, but I would like permission, Mr. Chairman, to be able to submit those to the panel in writing and hopefully we can get a response in a short period of time? Two weeks?

[The information may be found in the appendix.]

Mr. CONYERS. We will leave the record open until May 20.

Mr. MCCANDLESS. I would like a commitment from the panel as to whether or not we could get those within that period of time?

Mr. CONYERS. Can you manage by May 20?

General HENRY. I think we can, sir.

Mr. CONYERS. Our colleague, Tim Johnson of South Dakota, has also submitted additional questions. I may have some.

[The information may be found in the appendix.]

Mr. CONYERS. I want to thank you, Mr. McCandless.

Lady, and gentlemen, you have been helpful to us today. This concludes our second hearing on the bomber program. We appreciate the great attention and detail that you have paid to this program.



We will be looking forward to the tests that are coming up relatively soon.

Thank you for your presence here today. The subcommittee stands adjourned.

[Whereupon, at 11:25 a.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]



## APPENDIX

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### MATERIAL SUBMITTED FOR THE HEARING RECORD

GAO RESPONSES TO MINORITY QUESTIONS FOR THE RECORD  
B-1B BOMBER HEARING HELD ON MAY 4, 1994  
SUBCOMMITTEE ON LEGISLATION AND NATIONAL SECURITY  
HOUSE COMMITTEE ON GOVERNMENT OPERATIONS

Question 1: In 1991, the GAO estimated that the fan blade repair for the B-1B would cost between \$10 and \$500 million. The Air Force claims the problem has been fixed with a redesigned retainer ring and the addition of blade dampers at a total cost of \$9 million. Do you agree with the Air Force's current assessment? Have there been any catastrophic blade failures since the retainer rings and blade dampers have been in place? How long did it take the Air Force to make these repairs?

#### GAO Response:

Cost estimates provided during the 1991 testimony were based on preliminary information provided to us by the Air Force. At that time, the Air Force was considering several possible solutions to the uncontained first stage fan blade failures. Alternatives ranged from adding modified retaining rings and dampers to absorb vibration (estimated to cost \$10 Million) to a redesign of the fan and related components (estimated cost \$300 to \$500 Million). The Air Force decided to install modified retaining rings and blade dampers. The retaining ring modification began in January 1991 and took nine months with a cost of \$1.2 million. The blade damper modification began January 1993 and took one year to complete with a cost of \$7.3 million. Total acquisition cost for the two modifications was about \$8.5 million.

There have been no additional catastrophic uncontained failures related to the first stage fan blades since the modification was completed. However, the F-101 engine has experienced two additional catastrophic failures not related to the first stage fan blades: 1) A high pressure turbine shroud burn through in December 1991, and 2) an uncontained low pressure turbine disk failure in July 1992. Both of these problems are being addressed in the Lancer 101 engine modification program. This program is expected to cost \$83 million with completion in FY 2000.

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Question 2: What percentage of the peace-time flying requirements have the B-1B's met since 1991?

#### GAO Response:

The Air Combat Command states that the B-1B program has met

100 percent of peacetime flying training requirements for authorized combat crewmembers every year since 1991. That statement requires some clarification. According to Air Combat Command officials, in fiscal year 1992 the total B-1B program was under flown by 1087 hours. This reduction in flying hours was attributed to a one and a half month stand-down because of an in-flight engine mishap. After the stand-down, those crewmembers authorized for combat received the required flying time in order to maintain combat capability. However, those crewmembers who were not combat authorized (referred to as mission support crewmembers) did not meet training requirements in fiscal year 1992.

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Question 3: You reported that the B-1B had an average of four spare engines available at any given time between June 1992 and September 1993. What has been the average spare engine availability since September 1993?

GAO Response:

The average number of serviceable spare engines available from October 1993 through April 1994 was 23.5. The Air Combat Command computed requirement is 29.

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Question 4(a): Your testimony at the hearing seemed to indicate that the upcoming operational readiness test will resolve the lingering questions about the B-1B's ability to perform reliably under combat conditions. Is this correct?

GAO Response:

The primary objective of the Operational Readiness Assessment is to determine whether the B-1B, if provided the full complement of base-level spares, maintenance equipment, maintenance manpower, and logistic support equipment, can achieve and sustain a 75 percent mission capable rate.

While the Air Force will accumulate data to determine the total logistics cost of sustaining the B-1B at a 75 percent mission capable rate, the assessment is not designed to measure the operational effectiveness of the B-1B in carrying out conventional combat missions.

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Question 4(b): If the B-1B does perform satisfactorily during these tests, would you agree that, given the billions already invested in the plane, the proposed conventional munitions

upgrades make the most sense economically and militarily for maintaining a superior long-range bomber fleet in the future? What alternatives would you recommend instead?

**CAO Response:**

As we stated in our testimony, the cost of the Conventional Mission Upgrade Program has increased from about \$2.5 billion to about \$2.9 billion. Also, we pointed out that the timeframe for installing some of the planned precision guided munitions on the B-1B have slipped. Specifically, the original limited operational capability for JDAM, the first precision guided munition to be installed on the B-1B, has slipped from August 1999 to November 2001. Therefore, the economic and military expediency of upgrading the B-1B with these munitions will depend on their future development and installation costs and schedule.

Regarding alternatives to these weapons, as we previously stated, the primary objective of the ORA is to determine the cost of keeping the B-1B at a 75-percent mission capable rate. What those costs will be, whether they will be prohibitive in terms of supporting the aircraft, and whether there are less cost effective alternatives are obviously unknown at this time. Until we and the Air Force complete our analysis of the ORA results, we will not have the data upon which to make the judgment requested in this question.

Additionally, in April 1995, shortly after the results of the B-1B ORA will be available, the congressionally chartered National Commission on Roles and Missions of the Armed Forces is to report its recommendations on a number of issues, including how much of the nation's airpower should be based on land under Air Force control rather than on Navy carriers at sea. The Commission's recommendations will need to be considered in determining what upgrades should be funded for the B-1B.



MINORITY QUESTIONS FOR THE RECORD TO MS. DAGNIJA STERSTE-PERKINS  
OF THE CONGRESSIONAL RESEARCH SERVICE (CRS) FOR THE B-1B BOMBER  
OVERSIGHT HEARING HELD ON MAY 4, 1994 BY THE SUBCOMMITTEE ON  
LEGISLATION AND NATIONAL SECURITY BY THE HOUSE COMMITTEE ON  
GOVERNMENT OPERATIONS

- (1) Your testimony suggests that you retain a healthy level of skepticism about the Air Forces' latest proposal to improve the B-1B. Is that correct? Don't you agree, however, that it is hard to ignore the \$20 to \$30 billion dollars invested in the B-1B and that to disregard that investment may be fiscally irresponsible?
- (2) Aren't the conventional munitions upgrades recommended for the B-1B proposed for all bombers in the U.S. Air Force? They're not unique to the B-1B are they?
- (3) Would you agree that for some, the B-52 is like an old appliance that continues to perform and is difficult to part with? Didn't it take decades to develop the B-52 into its current state of conventional capability?
- (4) Putting aside for the moment any justifiable skepticism you may have about the Air Force's recommendations, wouldn't you agree that if the current proposed improvements to the B-1B can be implemented as described that the result would be a substantially improved bomber fleet over the status quo?
- (5) Are you aware of or would you recommend any other alternatives to the proposed upgrades to the B1-B for our consideration?

PLEASE RETURN RESPONSES NO LATER THAN MAY 20, 1994. YOU MAY FAX YOUR ANSWERS TO L. S. VINCZE AT (202) 225-5127. IN THE EVENT OF QUESTIONS, CALL MR. VINCZE AT (202) 225-2738.



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May 18, 1994

TO : House Committee on Government Operations  
Subcommittee on Legislation and National Security

ATTN : Steve Vincze

FROM : Dagnija Sterste-Perkins  
Foreign Affairs Analyst  
Foreign Affairs and National Defense Division

SUBJ : Responses to Minority Questions on B-1

In response to your fax of May 10, 1994, attached are responses to your questions related to my testimony of May 4 at the Subcommittee's oversight hearing on the B-1B program. Please do not hesitate to call me at 77631 if you require further information.

**RESPONSES TO MINORITY QUESTIONS FOR THE RECORD  
FOR THE MAY 4, 1994 B-1 OVERSIGHT HEARING  
SUBCOMMITTEE ON LEGISLATION AND NATIONAL SECURITY  
HOUSE COMMITTEE ON GOVERNMENT OPERATIONS**

1. CRS analysts are required to maintain objectivity toward their subject matter. As such, and as I indicated during the hearing, I can point out the possibility of viewing the current Air Force B-1 representations in light of the B-1's entire history. That history has been characterized by a great deal of flexibility in Air Force statements of objectives and assessments of progress toward those objectives. Current proposals do not anticipate that the B-1 will have any significant capability before the turn of the century, and then only if a number of other systems proceed successfully.

\$30 billion is hard to ignore. Whether or not sunk costs should form a basis for decision-making is a question that has been agonized over by many, including the Defense Department, which has tended to use two opposite approaches depending on the context: when urging support for a program, the approach has been that we should get something for all the money that has been spent; when urging termination of a program, the approach has been that there's no use throwing good money after bad. In this case, the sunk costs are embodied in a tangible fleet of aircraft. The question is one of alternatives; how much time and money would it take to design new systems from scratch?

2. The conventional precision guided munitions recommended for the B-1B are intended not only for the heavy bombers but also for smaller combat aircraft. The TSSAM, for instance, is planned for the F-16, the F/A-18E/F, and A-6E as

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well as for the long-range bombers. In addition, it is possible that some of the munitions will be able to be launched from existing fighter aircraft not mentioned in current plans, e.g., the F-15E, F-18C/D, and F-14D. For the B-1B and the B-2, these munitions will define their conventional payload, according to current plans. For the B-52, they will augment already existing capabilities.

3. It has indeed taken decades to develop the B-52 into its current state of conventional -- as well as nuclear -- capability. Unlike the B-1, however, the B-52 had substantial capability much earlier in its lifespan. Some 742 B-52s were delivered to the Strategic Air Command between 1954 and 1962. Originally intended for a high-altitude nuclear deterrence mission, the B-52s were performing not only that mission but others, too, since the 1950s. In 1957-58, 27 of the B-model B-52s became RB-52Bs, capable of photographic and electronic reconnaissance work. By the end of the 1950s, a portion of the B-52 force was on 15-minute ground alert; for a time, a number of the aircraft had been constantly airborne, but this practice was subsequently changed to ground alert with very quick response times. During the Cuban missile crisis of 1962, B-52s performed 24-hour missions designed to keep them within reach of potential targets and to ensure survival of SAC aircraft from surprise attack. From 1965 to 1973, B-52s flew almost daily conventional bombing missions in Southeast Asia for strategic bombing, close air support, and interdiction missions.

Among the operational strategic munitions carried over the years by the B-52: the Hound Dog air-to-surface missile (1960-1976); the Quail air decoy missile (1960-1978); short-range attack missiles, operational in 1972; air-launched cruise missiles, beginning in 1982; and a variety of nuclear bombs,

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including the Mk17, Mk28, Mk 36, Mk39, GBU 16, Mk 82, and Mk82 Snake Eye. Conventional munitions included the 1,000-lb., 750-lb., and 500-lb., bombs (used in Southeast Asia, as well as incendiary cluster bombs); Harpoon missiles; and special purpose items such as the AN/ALE-20 flare system, the M129 E2 leaflet bomb, and others. Some 22 different configurations of bombs and mines became standard for the B-52.

4. By definition, if the currently proposed improvements can be implemented, the result would be a substantially improved bomber fleet.

5. It is not clear from Air Force pronouncements whether all previous statements about the B-1B's conventional potential, i.e., about already-existing munitions that the aircraft could carry, are cancelled out by the current emphasis on a new generation of PGMs. For instance, in 1991-92, the following list of conventional munitions was said to pertain to the B-1B: Mk 82 general purpose, high drag, and snake eye bombs; M117 general purpose and high drag bombs; Mk 36, Mk 62, and Mk 117 conventional mines; CBU-87, CBU-89, and CBU-97 cluster bomb units. Additional munitions that Rockwell claimed could be carried by the B-1B included: Mk 84 AIR, Mk84 LD, and Mk84/MkII fragmentation bombs (3 variants), M117 LD and M117 R low drag and fragmentation demolition bombs; CBU-24, CBU-49, CBU-52, CBU-58, CBU-71, CBU-59, and CBU-78 cluster bombs; Mk 62, Mk36, Mk 40, Mk63, M117 Mk 59, Mk 55, Mk 56, Mk 60, Mk 64, and Mk 65 naval sea mines (500 lb.- 2,000 lb.); MC-1 and BLU-80 chemical bombs; GBU-24 A/B and GBU-27/B laser-guided bombs; and SLAM, Harpoon, HAVE NAP, AGM-130 and LRCOW terminally



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guided missiles. Presumably, these munitions were considered as suitable candidates for the B-1B of the future. If they were rejected, the reasons for rejection have not been made public. Any totally new conventional alternative to converting the B-1B fleet (other than dismissing the requirement) would likely cost more.

MINORITY QUESTIONS FOR THE RECORD TO THE U.S. AIR FORCE FOR THE  
B-1B BOMBER OVERSIGHT HEARING HELD ON MAY 4, 1994 BY THE  
SUBCOMMITTEE ON LEGISLATION AND NATIONAL SECURITY BY THE HOUSE  
COMMITTEE ON GOVERNMENT OPERATIONS

- (1) The B-1B has experienced problems over the past several years with its mission capable rate. Are the problems unique to the B-1B or have they occurred in the F101 family of engines? For example has the F-16 had similar problems?
- (2) Has the program to improve the reliability of the B-1B's engines been effective?
- (3) Last year the Air Force sought a reprogramming to address the B-1B spare parts repair backlog. The reprogramming was denied by the Senate. How would that additional funding affect the B1-B's mission capable rate?
- (4) Regarding the B-1B's Electronic Counter Measures (ECM) system, what can the current ECM system do? Is it accurate to say that the B-1B has no ECM capability? Why or why not?
- (5) Does the B-52 have a more effective ECM system than the B-1B? Why can't the B-1B use the ECM system on the B-52? How much would that cost?
- (6) Is there a way to mission plan around the B-1B's current ECM vulnerabilities? How?
- (7) Please explain the distinction between the "fully mission capable rate" and the "mission capable rate." If the fully mission capable rate is zero, does that mean that the B-1B can not perform its current mission? Please explain.
- (8) Describe some of the global power projection missions that the B-1B has performed in the past year.
- (9) How do the crews who fly and maintain the B-1B feel about the plane?
- (10) It is my understanding that the Air Force currently plans to put 26 B-1B's in the "Attrition Reserve." What does this status mean? Will these planes be flown and maintained regularly?
- (11) Are other Air Force aircraft in similar Attrition Reserve status?
- (12) Please explain why the Air Force has decided that it is more cost-effective not to put an anti-icing system on the B-1B's engines.

PLEASE RETURN RESPONSES NO LATER THAN MAY 20, 1994. YOU MAY FAX YOUR ANSWERS TO L. S. VINCZE AT (202) 225-5127. IN THE EVENT OF QUESTIONS, CALL MR. VINCZE AT (202) 225-2738.

INSERT FOR THE RECORD					
HOUSE	APPROPRIATIONS COMMITTEE	HOUSE	ARMED SERVICES COMMITTEE	HOUSE	OTHER
SENATE		SENATE		X SENATE	Committee on Government Operations
HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-001		

## B-1B Bombers Oversight

UNCLASSIFIED

Question: The B-1B has experienced problems over the past several years with its mission capable rate. Are the problems unique to the B-1B or have they occurred in the F-101 family of engines? For example, has the F-16 had similar problems?

Answer: The B-1 engine problems are not unique. For example, the F-16 also experienced some engine problems in their first few years of service. There were two major concerns with the B-1 F101 engines.. First, we experienced cracks in the fan blades which were fixed by adding blade dampers to control vibration and stress. Second, the engine experienced overheat conditions due to turbine cooling problems. This has been solved also. The Air Force has begun the Lancer 101 engine program to provide modifications and improvements to 23 items which will provide greater engine reliability and maintainability. The Lancer 101 program is modeled after the very successful F-16 Falcon 110 engine program.

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SENATE		SENATE		X	Committee on Government Operations
HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.		
4 May 94			HG-02-002		

## B-1B Bombers Oversight

UNCLASSIFIED

Question: Has the program to improve the reliability of the B-1B's engines been effective?

Answer: Yes, especially in the near term. The Lancer 101 engine program is expected to provide dividends throughout the life of the B-1. The Air Force has dramatically increased the number of operational spare B-1 engines available to the fleet. All 95 aircraft have 4 engines and there are adequate spare engines to sustain peacetime operations. This was not true just one year ago. We have not met our wartime requirement for 29 spare engines, but we expect to do so in the near future. During the period September 1993 through April 1994, the average number of spare engines was 23.

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HEARING DATE 4 May 94		TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-003	

## B-1B Bombers Oversight

UNCLASSIFIED

Question: Last year the Air Force sought a reprogramming to address the B-1B spare parts repair backlog. The reprogramming was denied by the Senate. How would that additional funding affect the B-1B's mission capable rate?

Answer: It is difficult to provide an exact figure. Denial of the reprogramming requested left the Air Force with a backlog of 3900 parts at the end of FY93. This backlog persists today but we have made progress and it now stands at approximately 2850 parts awaiting repair. This backlog impacts aircraft spares support, and contributes to keeping the mission capable rate below the 75% goal. However, the Air Force was able to complete 100% of its peacetime training requirements for the air crews. This was made possible by prioritizing and funding repair of the most important parts and providing overnight air shipment in many cases. The backlog directly impacts the B-1's ability to sustain operations in response to a real world contingency. These parts would not be available to support the aircraft whether it is operating from the CONUS or a forward deployment location. With full funding of the FY95 request, the Air Force projects that the repair backlog will be eliminated by the end of FY95.

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HOUSE SENATE	APPROPRIATIONS COMMITTEE	HOUSE SENATE	ARMED SERVICES COMMITTEE	X HOUSE SENATE	OTHER Committee on Government Operations	
HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-004			

## B-1 Bomber

UNCLASSIFIED

Question: Regarding the B-1B's Electronic Counter Measures (ECM) system, what can the current ECM system do? Is it accurate to say that the B-1 has no ECM capability? Why or why not?

Answer: It is not accurate to say the B-1 has no ECM capability at all. However, the B-1 was designed for low altitude, all-weather, nuclear operations. The ALQ-161, therefore, was optimized against strategic surface-air-missiles (SAMs) with focus on endgame countermeasures. Conventional scenarios provide a more dynamic and diverse range of threats. Additionally, operations must be conducted in both the low and high altitude regimes in contrast to the exclusively low altitude regime for nuclear environments. The ALQ-161 is limited in its ability to detect, identify, and jam the wide range of threats potentially encountered in the conventional scenario. The resulting limitations in situational awareness and jamming make the B-1 ECM upgrade a high priority for the Air Force.

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SENATE		SENATE		X SENATE	Committee on Government Operations
HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO.		
4 May 94			HG-02-005		

## B-1B Bombers Oversight

UNCLASSIFIED

Question: Does the B-52 have a more effective ECM system than the B-1B? Why can't the B-1B use the ECM system on the B-52? How much would that cost?

Answer: While the B-52 ECM system includes some techniques not currently available to the B-1, it is not necessarily more effective than the B-1's ECM system. The B-52 system is optimized for low altitude penetration similar to the B-1. The B-1 with its current ECM system replaced the B-52 in the low altitude nuclear penetrator role. Contractors will be able to propose any system, or combination of components, that satisfies the B-1 operational requirements. This may include selected, proven components from the B-52 system. However, directly integrating the current B-52 ECM system for use on the B-1 would likely be difficult and not satisfy the requirements for the conventional threat.

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HEARING DATE 4 May 94		TRANSCRIPT PAGE NO.		LINE NO.	INSERT NO. HG-02-006

## B-1 Bomber

UNCLASSIFIED

Question: Is there a way to mission plan around the B-1B's current ECM vulnerabilities? How?

Answer: Due to the current ALQ-161 limitations in situational awareness and jamming capability, the B-1 will be incorporated into joint/composite force packages including fighter escort, electronic combat, and suppression of enemy air defenses (SEAD) support whenever possible. A typical force package would consist of: F-15 Combat Air Patrol (CAP) or sweeps to counter the adversary air-to-air threat, F-4G/F-16 SEAD support, EF-111 electronic combat support, and other strike aircraft.

The B-1 will ingress at either high altitude or at terrain following altitudes depending on the threat. When attacking targets that are defended only by small arms or AAA, it is possible to improve survivability by attacking from medium or high altitudes.

While the ALQ-161 limitations can be overcome through intensive planning and force packaging, such tactical considerations are not sufficient for long-range power projection. The ability to operate autonomously (in power projection roles or beyond the "corridor of operations" provided by SEAD support) will depend heavily on our ability to field an ECM upgrade.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-007			

## B-1 Bomber

UNCLASSIFIED

Question: Please explain the distinction between the "fully mission capable rate" and the "mission capable rate." If the fully mission capable rate is zero, does that mean that the B-1B can not perform its current mission? Please explain.

Answer: Mission capable (MC) rate is defined as the percentage of time an aircraft is partially or fully mission capable. Fully mission capable (FMC) is the percentage of time an aircraft is fully capable of performing all assigned missions. In order to meet this definition, all subsystems listed in the Minimum Essential Sub-systems List (MESL) must be fully operational.

It must be emphasized that the B-1 is capable of performing its primary mission of conventional war fighting. However, specific components of the defensive avionics never achieved full capability. The FMC rate is assessed at zero because the current defensive avionics limit the B-1's ability to detect and counter specific types of threats. Therefore, current planning assumes that air superiority and defense suppression assets are available prior to B-1 employment in medium threat areas.

The most useful measure in determining overall availability of aircraft is the mission capable rate. The B-1 mission capable rate averaged 56% since 1991. As of March 1994, the mission capable rate was 63.7%.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-008		

## B-1 Bomber

UNCLASSIFIED

Question: Describe some of the global power projection missions that the B-1B has performed in the past year.

Answer: The B-1 participated heavily in a variety of Global Power missions and conventional deployments in 1993. A robust schedule continues in 1994. The focus of Global Power missions is to exercise the quick reaction, global employment capability of our bombers.

Three examples of Global Power exercises conducted in 1993 follow:

- Dynamic Guard: Three B-1s flew over 8000 nautical miles in 21.4 hours. The B-1s departed the United States to strike an Italian bombing range and then returned to their home stations in the U.S.
- Bright Star: Three B-1s flew over 13,000 nautical miles in 31.8 hours, setting a record for the longest B-1 flight ever. The B-1s departed the U.S. to strike a bombing range in Egypt as part of the Bright Star joint force exercise.
- Global Enterprise: Two B-1s flew around the world missions. The B-1s departed the U.S. flying 24.2 hours to strike a European bombing range and recover at a forward operating location in Indian Ocean. After a crew change and refueling, the B-1s flew 23.3 hours to strike a Northern Pacific bombing range and recover at Ellsworth AFB.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-009			

## B-1 Bomber

UNCLASSIFIED

Question: How do the crews who fly and maintain the B-1B feel about the plane?

Answer: Those who fly and maintain this aircraft are genuinely confident in their ability to prove that it is capable of excelling as a conventional bomber. Maintenance crews and weapon load teams have repeatedly demonstrated the capability to ready the aircraft for assigned missions on a daily basis. Aircrews are highly experienced in conventional tactics. Our operational B-1 units have trained heavily in conventional scenarios since Desert Storm. The B-1 is a familiar sight in joint and allied exercises today and we continue to develop experience in operations from deployed locations. Today, B-1 units are tasked in all potential major regional conflicts. In fact, the B-1 currently constitutes over one-third of our bombers apportioned to theater commanders.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-010			

## Attrition Reserve

UNCLASSIFIED

Question: It is my understanding that the Air Force currently plans to put 26 B-1B's in the "Attrition Reserve." What does this status mean? Will these planes be flown and maintained regularly?

Answer: Attrition Reserve is an Air Force inventory category used to determine funding. Aircraft in this category are funded only for their share of fleetwide depot costs, to include periodic overhauls at the depots. General maintenance and upkeep is performed by the possessing unit. The number of aircraft in attrition reserve is the aircraft inventory above the sum of the primary and backup aircraft. It is used to backfill primary and backup inventories for peacetime and combat losses. Individual airframes are not generally kept in a particular category. All B-1B aircraft counted in the total aircraft inventory (which includes attrition reserve) are regularly flown and maintained. They rotate through the normal schedules of operational flying and maintenance actions, and receive planned modifications.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HS-02-011			

## Other Attrition Reserve

Question: Are there other Air Force aircraft in similar attrition reserve status?

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Answer: Yes. The Air Force attempts to maintain adequate attrition reserve of all aircraft types to meet the primary taskings through the life of the weapon system. The high proportion of B-1Bs and B-52Hs in attrition reserve reflects attrition requirements and the Air Force plan to reactivate additional B-1B and B-52H squadrons in the future. Restoring additional bombers to primary status would be concurrent with procurement of advanced munitions, when inventories are sufficient to sustain the bombers in combat operations.

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SENATE				SENATE				X		Committee on Government Operations	
HEARING DATE		TRANSCRIPT PAGE NO.		LINE NO.		INSERT NO.					
4 May 94						HG-02-012					

## B-1B Bombers Oversight

UNCLASSIFIED

Question: Please explain why the Air Force has decided that it is more cost-effective not to put an anti-icing system on the B-1B's engines.

Answer: The Air Force has studied the need for an advanced ice protection system on the B-1, and has determined that it would not be cost effective to procure one. We place restrictions on the ground operations of the B-1 during peacetime operations to reduce maintenance actions, and would not apply during wartime. During FY 1993, there were only 10 incidents of suspected damage to engine fan blades caused by ice in over 5500 sorties flown. Ice damage does not inhibit or prevent mission completion or effectiveness. Maintenance crews can replace up to 6 fan blades (80% of repairs) within 4 hours. Spare engine blades have been procured and replacing damaged fan blades will save millions of dollars over developing and procuring a new anti-ice protection system.

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**Congress of the United States**  
**House of Representatives**  
**Washington, DC 20515-4101**

April 25, 1994

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The Honorable John Conyers, Jr.  
Chairman  
Committee on Government Operations  
U.S. House of Representatives  
B373 Rayburn House Office Building  
Washington, DC 20515

Dear Mr. Chairman:

I appreciate your interest in the B-1B bomber program and have noted your intention to hold a hearing to examine the proposed modernization plan for the aircraft. I share your interest in the B-1B program and am particularly concerned with the future of the program since one of the facilities that currently bases the B-1B, Ellsworth AFB, is located in my district. I respectfully request that the following questions be submitted to the Air Force witnesses at the hearing and that both the questions and the responses be included in the hearing record:

1. Has the B-1B fleet been able to maintain the interim mission capable rate of 55% set for it by Air Combat Command?
2. Describe some of the global power projection missions the B-1B has performed in the past year. Are these missions important for power projection?
3. Please tell me, generally, how the crews who fly the B-1B feel about its capabilities?
4. Why has the Air Force reduced the number of B-1Bs it is funding down to only 60?
5. It is my understanding that current plans call for 26 B-1Bs to be placed in Attrition Reserve. What does this status mean? Will these planes be flown regularly?
6. What is the annual operating and maintenance costs to restore a squadron of 12 B-1Bs to operational service?
7. Are there other Air Force aircraft in similar Attrition Reserve status?
8. Will the Attrition Reserve aircraft be conventionally modified to ensure they are in the same configuration as the 60 PAA aircraft?
9. How many B-1Bs were required for operational combat use in the Bomber Roadmap that was published in June of 1992?
10. Can the Air Force effectively handle two nearly simultaneous major regional conflicts with only 60 B-1s?

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11. I am aware that General McPeak has made a recommendation that the Air Force needs to maintain 154 deployable bombers which represents a significantly larger number than the 116 bombers prescribed in the DoD's annual report. What is the status of the consideration of General McPeak's recommendations?

12. Is the "disconnect" between the time that the B-1B will get JDAM and the time that it will have a modified ECM system an operational consideration?

13. Is there a way to mission plan around B-1B ECM vulnerabilities?

14. What funding would be necessary to get the ECM upgrade back on schedule?

15. It is my understanding that critics of the B-1B are concerned about the cracks that the B-1B has experienced in its longeron and horizontal stabilizer. Is the B-1B uniquely plagued by such cracks or have other aircraft experienced similar problems?

16. The B-1B has experienced problems over the past several years that have affected the fleet's Mission Capable Rate. Are the problems we are seeing unique to the B-1B or have they occurred in the F-101 family of engines? For example, has the F-16 had similar problems?

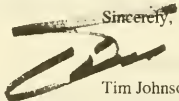
17. Has the program to improve the reliability of the B-1B's engines been effective? Are there any problems today with the engines on the B-1B? Is there a shortage of spare engines, today, for the B-1B?

18. Last year the Air Force sought a reprogramming to address the B-1B spare parts repair backlog, unfortunately the reprogramming was denied by the Senate. How would that funding affect the B-1B's Mission Capable Rate?

Again, I appreciate you taking the time to examine the capabilities of the B-1B by holding a hearing on the subject. As you know, Section 132 of the FY 1994 DoD Authorization Act requires the Secretary of the Air Force to develop a plan to test the operational readiness rate of one B-1B bomber wing that could be sustained if that wing were provided the planned complement of base-level spare parts, maintenance equipment, maintenance manpower, and logistics support equipment. The Act further directs that the operational readiness rate of one squadron of the test wing be tested at a remote operating location in a manner consistent with Air Force plans for the use of the B-1B bomber in a conventional conflict. This test will be conducted at Ellsworth AFB, South Dakota this summer and the final stage of the testing will take place in New Mexico in November where the aircraft will simulate wartime situations. I am anxious for the tests to be run because I believe that the results will provide both Congress and DoD with a better basis than is currently available to measure the deployability of the B-1B aircraft. I hope that you will reserve final judgement on the capabilities of the B-1B until after the completion of the tests later this year.

With the closing of more U.S. bases overseas, it is likely that dependence on long-range bombers will increase and I sincerely appreciate your commitment to ensuring that this nation continues to maintain the most effective bomber force in the world. Please contact me if you have questions, or have a member of your staff contact Sarah Dahlin at 225-2801.

Sincerely,



Tim Johnson

cc: The Honorable Alfred A. McCandless

TPJ:smd

MIKE SYNAR  
2d DISTRICT OKLAHOMA

COMMITTEES  
ENERGY AND COMMERCE

JUDICIARY

GOVERNMENT OPERATIONS

**Congress of the United States**  
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May 20, 1994

The Honorable John Conyers  
Chairman, Subcommittee on Legislation  
and National Security  
B373 Rayburn House Office Building  
Washington, D.C. 20515

Dear John:

Thank you for holding the recent hearing regarding the future of the B-1 program. For many years now I have called for the B-1B to have a greater role in projecting U.S. forces for our national security. Specifically, I have advocated the use of long-range aircraft to supplement aircraft carriers in defending our sea lanes.

As you know, this Congress has committed to a five year schedule of reductions in defense spending. These times of tighter budgets have raised concerns of protecting the military's readiness. With an aging carrier fleet and the delay in deployment of new carrier battle groups, the time is right to revisit the issue of assigning the B-1B to maritime roles.

Recently, General Merrill McPeak of the Air Force called for the B-1B fleet to be placed in attrition reserve as called for in the Clinton Administration's Bottom-Up Review (BUR). This creates new concerns of not having the bomber capability to carry out the two-war scenario used in the BUR. However, by assigning some of the B-1Bs to maritime roles, these planes will be available for use in other roles as well.

There are several reasons why the B-1Bs should be considered for helping to project naval capabilities throughout the world. The two most important being readiness and taxpayer savings.

Mr. Chairman, this is an opportunity for the American taxpayer to get the most value out of a strategic investment. The B-1Bs must be used to defend our sea lanes and compensate for bomber shortages created by our aging bomber and carrier fleets. These contingencies should make us consider reassigning the B-1B to maritime roles. I wish to submit the following questions to each member of the panel to assess this opportunity in greater detail.

Page Two  
May 20, 1994

1) First, when the B-1B program was presented to the Congress in 1981, one justification was its' ability to carry the Harpoon missile. Does the B-1B fleet currently have this Harpoon capability? If not, please explain.

2) In testimony before the House Appropriations Committee, the Head of Air Force Systems Command testified it would take \$500 million to modernize the entire B-1B fleet rather than about sixty. This is about half the cost of a single B-2. Please compare the combat effectiveness of a single B-2 and 60-72 B-1Bs. In this comparison please include nuclear, deep strike conventional and maritime support missions.

3) With the retirement of the A-6E, the Navy will be without an all weather strike capability from 1998 until they obtain an aircraft out of the JAST (Joint Advanced Strike Technology) program. They estimate such an aircraft's arrival to be no sooner than 2007. I understand however, the Air Force has no formal plans for procurement of an operational aircraft out of JAST. What is the Air Force estimate of the date at which JAST will result in an operational aircraft. If there is a difference between the Navy and Air Force, please explain why, if there is a difference.

4) A recent GAO report discussed a lack of readiness of the B-1B force. To what extent is this lack of readiness caused by a squeeze on B-1B funds used to help pay for the B-2? What additional past funding would have improved the B-1B fleet's readiness to originally anticipated levels?

5) The same GAO report noted that B-1B engines were having to be replaced after about half their expected 3000 hour time between overhauls. At the same time, the Navy's F-14Ds operate 4000 tactical hours between overhauls using essentially the same engine. Why the difference? In addition, what is the time between overhauls in the B-2s and F-117As presently in service?

6) In 1981, the Strategic Air Command wanted to pursue only a stealth bomber but Air Force headquarters wanted first to develop and build the B-1B on the grounds that the aircraft which became the B-2 would be unaffordable. However, responsibility for maintenance and readiness of the B-1B force was tasked to Strategic Air Command in Omaha. What oversight was exercised by the Air Force to ensure that Omaha was not undermining the B-1B program in the interests of buying more B-2s?

Page Three  
May 20, 1994

Thank you for taking my concerns into consideration and allowing me to submit questions to the panel. I eagerly await their respective responses. Please let me know how I can be of assistance in helping you and the Committee with the assessment of the B-1B in our national security strategies.

With best wishes,

Sincerely,  
  
Mike Synar  
Member of Congress

MS/ff

INSERT FOR THE RECORD					
HOUSE SENATE	APPROPRIATIONS COMMITTEE	HOUSE SENATE	ARMED SERVICES COMMITTEE	X HOUSE SENATE	OTHER Government Operations
HEARING DATE 4 May 94	TRANSCRIPT PAGE NO. Synar	LINE NO.	INSERT NO. HG-02-001		

## B-1B PROGRAM

UNCLASSIFIED

Question: First, when the B-1B program was presented to Congress in 1981, one justification was its ability to carry the Harpoon missile. Does the B-1B fleet currently have this Harpoon capability? If not, please explain.

Answer: The B-1 fleet currently does not have the capability to carry Harpoon missiles. The Mk-82 500 pound bomb was the only conventional weapon included in the original B-1 baseline program. The 1992 Bomber Roadmap did not establish an anti-surface warfare mission for the B-1; therefore, there is no requirement for a Harpoon weapon. Although the B-1 Conventional Mission Upgrade Program will add several advanced weapons, Harpoon is not one of these. Detailed technical analysis and systems engineering studies, which would examine integration of the Harpoon on the B-1 have not been accomplished. What is known at this time, is that the Harpoon in its current configuration will not fit on the B-1 rotary launcher without significant modification to both the launcher and the weapon itself. Furthermore, the B-1 does not currently have the appropriate weapons interface unit and software to command and control the Harpoon weapon. To place the Harpoon on the B-1 would require a new RDT&E program to modify both the Harpoon and the B-1. A program cost estimate for this effort is not available at this time.

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HOUSE	APPROPRIATIONS COMMITTEE	HOUSE	ARMED SERVICES COMMITTEE	X	HOUSE	OTHER
SENATE		SENATE			SENATE	
HEARING DATE 4 May 94	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-002			

## B-1 BOMBER

QUESTION: In testimony before the House Appropriations Committee, the Head of Air Force Systems Command testified it would take \$500 million to modernize the entire B-1 fleet rather than about sixty. This is about half the cost of a single B-2. Please compare the combat effectiveness of a single B-2 and 60 - 72 B-1s. In this comparison please include nuclear, deep strike conventional, and maritime support missions.

ANSWER: The deep strike conventional mission is a complementary scenario. The Bomber Road Map envisions employing B-2s to strike highly defended targets, allowing B-1s to penetrate and attack the larger target set. Both aircraft will use accurate direct attack and standoff weapons to put the target set at risk. Due to their limited numbers, B-2s engage a portion of the required target set within the first 5 days of a major regional conflict (MRC). B-1s and B-52s cover the remainder.

Neither B-1 or B-2 aircraft perform ship attack in the maritime support role. Only the B-52 has this capability with the Harpoon missile. The two basic B-1 and B-2 maritime capabilities are surveillance and naval mining. Surveillance is detecting or locating a ship or surface action group on the open ocean. There are two ways to accomplish the search; passively with the B-1 ALQ-161 or B-2 threat emitter locator system (TELS); and actively with the synthetic aperture radar. In employment of sea mines, large numbers of B-1s provide significant capability to mine medium threat areas. Mines must be released over the area to be covered, so high threat areas are best served by B-2s. It does not have the numbers to provide mass coverage, but instead would be used to deny the enemy use of critical, highly defended choke points.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO	LINE NO	INSERT NO HG-02-003		

## Joint Advanced Strike Technology (JAST) Program

UNCLASSIFIED

Question: With the retirement of the A-6E, the Navy will be without an all weather strike capability from 1998 until they obtain an aircraft out of the JAST (Joint Advanced Strike Technology) Program. They estimate such an aircraft's arrival to be no sooner than 2007. I understand, however, the Air Force has no formal plans for procurement of an operational aircraft out of JAST. What is the Air Force estimate of the date at which JAST will result in an operational aircraft. If there is a difference between the Navy and Air Force, please explain why, if there is a difference.

Answer: The Air Force, like the Navy, expects the JAST Program to facilitate the ultimate fielding of the affordable next generation strike weapon system(s) with IOC around 2010. The JAST Program is structured to enable an EMD start(s) for a follow-on joint development program(s) in the year 2000, using technologies and operational concepts transitioned and demonstrated under the JAST Program as the foundation.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO. Mr Synar	LINE NO.	INSERT NO. HG-02-004			

## B-1B PROGRAM

UNCLASSIFIED

Question: A recent GAO report discussed a lack of readiness of the B-1B force. To what extent is this lack of readiness caused by a squeeze on B-1B funds used to help pay for the B-2? What additional past funding would have improved the B-1Bs fleet's readiness to originally anticipated levels?

Answer: B-1 fleet readiness was not affected by the B-2 procurement. Prior year funding shortfalls in overall depot accounts, as well as congressional restrictions, delayed the Air Force transition to more cost-effective organic support for the B-1. These events helped keep B-1 mission capable rates artificially low. However, the FY94 funding to complete support equipment procurement, and the requested FY95 interim contractor support funding will contribute significantly to B-1 mission capable rate improvement.

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HEARING DATE 4 May 94	TRANSCRIPT PAGE NO. Synar	LINE NO.	INSERT NO. HG-02-005		

## B-1B PROGRAM

UNCLASSIFIED

Question: The same GAO report noted that B-1B engines were having to be replaced after about half the expected 3000 hour time between overhauls. At the same time, the Navy's F-14Ds operate 4000 tactical hours using essentially the same engine. Why the difference? In addition, what is the time between overhauls in the B-2s and F-117As presently in service?

Answer: The F101-GE-102 used in the B-1 and the F110-GE-400 used in the F-14D are not "essentially the same engine." The two engines share a common core (high pressure compressor, combustor, and high pressure turbine). However, other engine components and the overall engine design are different. The differences in reliability and maintainability of the two engines are driven by each engine's unique design features as well as the effects of specific aircraft installation and mission usage.

The comparison of 3000 hours for the F101 with 4000 "tactical hours" for the F110 is an apples-to-oranges comparison. Apparently, the term "tactical hours" refers to Total Accumulated Cycles, or TACs. TACs measure the number of times an engine has been operated at high temperature. Typically, fighter engines accumulate 3-4 TACs per engine flying hour, and bombers accumulate approximately one TAC per engine flying hour.

The F101 engine was designed in the early 1970s to last 3000 TACs between inspections. The engine has not been meeting this design goal during operational usage in the high speed, low altitude environment. The F110, which was derived from the F101 in the early 1980s, is designed to last 4000 TACs. The F110 benefits from experience gained on the F101 engine as well as advances in engine technology.

The F118-GE-100 used in the B-2 and the F404-GE-F1D2 used in the F-117A are maintained by On-Condition Maintenance (OCM) and are not overhauled at specific intervals. Under OCM, the engines are inspected at regular intervals and components are repaired or replaced as required. The current F118-GE-100 inspection interval is 2500 hours. As experience is gained with the engine, this interval is expected to grow to 4000 hours. The current F404-GE-F1D2 inspection interval is 1900 hours.

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4 May 94	Synar		HG-02-006			

## B-1B PROGRAM

UNCLASSIFIED

Question: In 1981, the Strategic Air Command wanted to pursue only a stealth bomber but Air Force headquarters wanted first to develop and build the B-1B on the grounds that the aircraft which became the B-2 would be unaffordable. However, responsibility for maintenance and readiness of the B-1B force was tasked to Strategic Air Command in Omaha. What oversight was exercised by the Air Force to ensure that Omaha was not undermining the B-1B program in the interests of buying more B-2s?

Answer: Due to the importance of the B-1 and B-2 programs, the Air Force established Special Task Force Offices within both the Air Staff and at Headquarters Strategic Air Command. These offices reported directly to CSAF and CINCSAC on all program matters. Additionally, with the establishment of the PEO process, both the B-1 and the B-2 procurement came under General Officer-level oversight.

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## B-1 Bomber

UNCLASSIFIED

Question: Has the B-1B fleet been able to maintain the interim mission capable rate of 55% set for it by Air Combat Command?

Answer: Yes. The B-1 has met the interim B-1 standard of 55%. Average mission capable rate for the last four years is approximately 56%. The mission capable goal for the B-1 remains 75%. We will demonstrate our ability to achieve and sustain this goal during the Congressionally mandated Operational Readiness Assessment which began June 1.

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HEARING DATE	TRANSCRIPT PAGE NO.	LINE NO.	INSERT NO. HG-02-008		

## B-1 Bomber

UNCLASSIFIED

Question: Describe some of the global power projection missions that the B-1B has performed in the past year. Are these missions important for power projection?

Answer: The purpose of Global Power missions is two-fold. First, we exercise the quick reaction, global employment capability of our bombers. Second, we send a signal to potential aggressors that we can strike quickly as well as with mass.

The B-1 participated heavily in a variety of Global Power missions and conventional deployments in 1993. A robust schedule continues in 1994. Three examples of Global Power exercises conducted in 1993 follow:

- Dynamic Guard: Three B-1s flew over 8000 nautical miles in 21.4 hours. The B-1s departed the United States to strike an Italian bombing range and then returned to their home stations in the U.S.
- Bright Star: Three B-1s flew over 13,000 nautical miles in 31.8 hours, setting a record for the longest B-1 flight ever. The B-1s departed the U.S. to strike a bombing range in Egypt as part of the Bright Star joint force exercise.
- Global Enterprise: Two B-1s flew around the world missions. The B-1s departed the U.S. flying 24.2 hours to strike a European bombing range and recover at a forward operating location in Indian Ocean. After a crew change and refueling, the B-1s flew 23.3 hours to strike a Northern Pacific bombing range and recover at Ellsworth AFB.

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## B-1 Bomber

UNCLASSIFIED

Question: Please tell me, generally, how the crews who fly the B-1B feel about its capabilities?

Answer: Those who fly this aircraft are genuinely confident in their ability to prove that it is capable of excelling as a conventional bomber. The B-1 is a familiar sight in joint and allied exercises today and we continue to develop experience in operations from deployed locations. Aircrews and maintenance crews have repeatedly demonstrated the capability to employ the aircraft daily during these exercises. One experienced crewmember recently commented after a Red Flag exercise, "We integrated extremely well with the F-15 air-to-air guys and the F-16s. We were very, very successful during these missions."

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## B-1B Bomber

UNCLASSIFIED

Question: Why has the Air Force reduced the number of B-1Bs it is funding down to only 60?

Answer: The FY95-99 President's Budget reduced Primary Aircraft Authorized (PAA) to 60 aircraft. The total B-1 inventory will remain at 95 aircraft. Current plans place 26 aircraft in Reconstitution Reserve status (formerly attrition reserve) beginning in FY95. This status means only that aircrews and flying hours will not be funded for 26 Reconstitution Reserve aircraft. The decision to place these aircraft in Reconstitution Reserve status does not indicate that the Air Force places a low priority on the B-1. This decision was a prudent step taken to ensure we preserve the right kind of combat capability during a period of austere budgets. In the FY96 Program Objective Memorandum (POM), the Air Force funds the same modifications as those assigned as PAA (including conventional upgrades.) Additionally, the Air Force reinstates flying hours, aircrews, and maintenance personnel, for the return of Reconstitution Reserve aircraft to Combat Coded status as their programmed precision munitions become available.

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B-1B - Part 1

UNCLASSIFIED

Question: It is my understanding that current plans call for 26 B-1Bs to be placed in Attrition Reserve. What does this status mean? Will these planes be flown regularly?

Answer: The FY95-99 President's Budget reduced Primary Aircraft Authorized (PAA) to 60 aircraft. The total B-1 inventory will remain at 95 aircraft. Current plans place 26 aircraft in Reconstitution Reserve status (formally attrition reserve) beginning in FY95. This status means only that aircrews and flying hours will not be funded for the 26 Reconstitution Reserve aircraft. Normally, attrition reserve aircraft are kept in the inventory to replace aircraft destroyed in combat or peacetime. In this case, the term Reconstitution Reserve is more appropriate because we intend to bring them back to combat-coded status. Please note that we will not identify specific aircraft as Reconstitution Reserve. These aircraft will be located at operational units, rotate in and out of flying operations. A maintenance technician or young crew member will be unable to discern the difference in category.

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4 May 94			HG-02-012		

## B-1 BOMBER

UNCLASSIFIED

QUESTION: What is the annual Operating and Maintenance costs to restore a squadron of 12 B-1Bs to operational service?

ANSWER: Assuming the 12 aircraft restored to operational service will come from the Reconstitution Reserve and end strength relief is provided, model driven funds required in FY95 total \$25.2M.

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## B-1 BOMBER

QUESTION: Are there other Air Force aircraft in similar Reconstitution Reserve\* status?

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ANSWER: Yes, many weapon systems have assets in Reconstitution Reserve status. The following is an example of some of the aircraft the Air Force projects will be in Reconstitution Reserve in FY95/4:

F-4E	1
F-15E	1
F-16/52	7
F-111F	8
EF-111A	11
F-117	1
B-1B	26

\* Note: The term "attrition reserve" was used in the original document to describe aircraft maintained but not funded for flying. The Joint Staff is using the term "reconstitution reserve" to describe the same aircraft. In this and future correspondence we will use this term to be consistent with the Joint Staff.

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## B-1 BOMBER

UNCLASSIFIED

QUESTION: Will the Reconstitution Reserve\* aircraft be conventionally modified to ensure they are in the same configuration as the 60 PAA aircraft?

ANSWER: Yes, the Air Force funds the same modifications for B-1 Reconstitution Reserve aircraft and PAA alike (including conventional upgrades).

\* Note: The term "attrition reserve" was used in the original document to describe aircraft maintained, but not funded for flying. The Joint Staff is using the term "reconstitution reserve" to describe the same aircraft. In this and future correspondence we use this term to be consistent with the Joint Staff.

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## B-1B Bomber

UNCLASSIFIED

Question: How many B-1Bs were required for operational combat use in the Bomber Roadmap that was published in June of 1992?

Answer: The Bomber Roadmap envisioned two phases of operations during a conventional campaign - the initial stage and the sustained stage. During the initial phase of the campaign, bombers can assert the best of their characteristics: range, mass, and quick reaction to blunt the enemy attack and buy time for follow-on forces. The Bomber Roadmap envisions slowing the enemy advance attacking 1250 time-critical targets during a five day period. In order to accomplish this, the Roadmap provided a maximum of 80 B-1s to the theater commanders. This assumed the harshest of wartime conditions - 35 hour missions flown from the Continental U.S. for five days attacking time-critical, high value targets with very limited support from other assets.

The second stage is deployed operations from forward operating locations. The Roadmap assumed 48 B-1s would deploy, which required fielding of Readiness Spares Packages (RSP). Although the Roadmap focused heavily on the more stressing CONUS-CONUS operation, the deployed operations are the more likely scenario. More recent force structure analyses, such as the Bottom-Up Review, have placed emphasis on the deployed scenarios for all bombers.

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## B-1 BOMBER

UNCLASSIFIED

QUESTION: Can the Air Force effectively handle two nearly simultaneous major regional conflicts (MRCs) with only 60 B-1s.

ANSWER: We can support two nearly simultaneous MRCs with 60 B-1s if we deploy available B-52s. This posture accepts near term risk as we field conventional enhancements in the bomber force and significant numbers of accurate weapons. Ultimately, we intend to field a force of approximately 130 conventionally enhanced, combat coded bombers supporting the two MRC and nuclear withhold requirements.

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## B-1 BOMBER

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QUESTION: I am aware that General McPeak has made a recommendation that the Air Force needs to maintain 154 deployable bombers which represents a significantly larger number than the 116 bombers prescribed in the DOD's annual report. What is the status of the consideration of General McPeak's recommendations?

ANSWER: The current status of force structure issues, including bombers, is being coordinated with the Office of the Secretary of Defense.

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## B-1 Bomber

UNCLASSIFIED

Question: Is the "disconnect" between the time that the B-1B will get JDAM and the time that it will have a modified ECM system an operational consideration?

Answer: The current ALQ-161 has limitations in situational awareness and jamming capability. Therefore, the B-1 will be incorporated into joint/composite force packages including fighter escort, electronic combat, and suppression of enemy air defenses (SEAD) support whenever possible.

Until the ECM Upgrade is fielded in FY03, use of force packaging will provide the capability to attack point targets (airfields, bridges, etc.) with JDAM (FY01 capability) and armored columns using cluster munitions (including Sensor Fused Weapon in FY96). It should be noted that these tactics are similar to those used in Desert Storm and, in fact, are trained continuously at Red Flag and other composite force exercises. The B-1 has participated in these exercises heavily since Desert Storm.

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## B-1B Bomber

UNCLASSIFIED

Question: Is there a way to mission plan around B-1B ECM vulnerabilities?

Answer: The B-1 will ingress at either optimum cruising altitude or at terrain following altitudes depending on the threat. Countermeasures currently available to the B-1, in addition to some jamming capability, include chaff, flares, and tactics. When attacking targets that are defended only by small arms or most AAA, it is possible to improve survivability by attacking from medium or high altitudes. For operations against a more sophisticated Integrated Air Defense System, threat integration would be targeted through lethal SEAD and support jamming for all strike aircraft, including the B-1. The B-1 will be incorporated into joint/composite force packages including fighter escort, electronic combat, and suppression of enemy air defenses (SEAD) support whenever possible. A typical force package would consist of: F-15 Combat Air Patrol (CAP) or sweeps to counter the adversary air-to-air threat, F-4G/F-16 SEAD support, EF-111 electronic combat support, and other "strikers" which provide mutual support as well.

It should be noted that while limitations can be overcome through intensive planning and force packaging, such tactical considerations are not sufficient for long-range power projection on short notice. Except in lower threat environments, the ability to operate autonomously (in power projection roles or beyond the "corridor of operations" provided by SEAD support) will depend on our ability to field an ECM upgrade.

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4 May 94	Johnson		HG-02-020			

## B-1B - PART II

UNCLASSIFIED

Question: What funding would be necessary to get the ECM upgrade back on schedule?

Answer: Currently, the Air Force plans to restart the ECM effort in FY96 and begin to phase in capability in FY03. The ECM upgrade could be accelerated about two years by adding approximately \$50M in FY95 and approximately \$280M over the FYDP. This increase in the FYDP years funding would not increase the final cost of the ECM upgrade.

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## B-1B - Part II

UNCLASSIFIED

Question: It is my understanding that critics of the B-1B are concerned about the cracks that the B-1B has experienced in its longeron and horizontal stabilizer. Is the B-1B uniquely plagued by such cracks or have other aircraft experienced similar problems?

Answer: The B-1 is not unique in experiencing some structural cracking during the first several years of aircraft employment. Experience shows that these maturation problems are common in military aircraft; the B-52, F-111, F-15, and F-16 have all experienced some structural cracking.

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## B-1B Bomber/XO

UNCLASSIFIED

Question: The B-1B has experienced problems over the past several years that have affected the fleet's Mission Capable Rate. Are the problems we are seeing unique to the B-1B or have they occurred in the F101 family of engines? For example, has the F-16 had similar problems?

Answer: The B-1 is not unique in experiencing engine maturation problems. The specific problems experienced by the F101 engine in the past are unique to the F101 engine and not to the family of engines. The major F101 problems have been addressed and are in the process of being corrected with the Lancer 101 modification package. The F-16's F110 engine has had maturation problems, though not similar to the F101. F110 problems are being corrected with the Falcon 110 program.

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B-1B Bomber/XO

UNCLASSIFIED

Question: Has the program to improve the reliability of the B-1B's engines been effective? Are there any problems today with the engines on the B-1B? Is there a shortage of spare engines, today, for the B-1B?

Answer: Yes, near term actions to fix the F101 engine have been effective, but the long term engine maturation effort, Lancer 101, will continue through FY99. Near term actions have dramatically increased the number of spare B-1 engines available since 1991-92, when fan blade and turbine failures, and the subsequent repairs, caused engine shortages. Today, no new B-1 engine problems have surfaced. The B-1 fleet has sufficient installed engines and spares to support peacetime operations. ACC has an added requirement to maintain 29 spare engines to support war reserve requirements. Historically, the number of engines available against this requirement has been low, but improving. During the period September 1993 to May 1994, the average number of available spare engines was 23. This number may fluctuate until Lancer 101 modifications are complete.

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## B-1B - PART II

UNCLASSIFIED

Question: Last year the Air Force sought a reprogramming to address the B-1B spare parts repair backlog, unfortunately the reprogramming was denied by the Senate. How would that additional funding affect the B-1B's mission capable rate?

Answer: It is difficult to provide an exact figure identifying the impact of the parts repair funding shortfall on B-1 mission capable rate. Denial of the requested reprogramming left the Air Force with a backlog of approximately 4000 B-1 parts for repair at the end of FY93. This backlog has contributed to keeping the B-1 mission capable rate artificially low. However, the Air Force was able to complete 100% of its peacetime training requirements, by prioritizing repair of the most vital parts. The Air Force has taken actions to improve parts repair efficiency, and has revised interim contractor support (ICS) funding requirements. If the FY95 budget request is fully funded, the Air Force projects that the B-1 parts repair backlog will be depleted by the end of FY95. With continued funding support, the Air Force expects the B-1 mission capable rate to improve to meet its goal of 75% for the mature aircraft.

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